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Original Communications.

TREATMENT OF CHRONIC VALVULAR DISEASE OF THE HEART.

READ BEFORE THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

BY JAMES TYSON, M.D.,
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SINCE there are certain points in the treatment of disease of the cardiac valves which are the same for the different orifices, I shall consider first such measures as are thus common, referring more especially to mitral and aortic disease.

In the first place, it is well known that there exist chronic valvular defects at either of these orifices which give rise to no symptoms whatever and are often accidentally discovered. From the stand-point generally conceded that such defects themselves are irremediable, it is clear that, in the absence of symptoms, medicinal treatment is quite unnecessary. On the other hand, it is a happy circumstance when the subjects of such lesions are made aware of their presence, because they are enabled so to regulate their mode of life as to prevent harmful consequences, either symptomatically or organically. Such persons should avoid overexercise and excitement. Running, or even walking rapidly, hurriedly ascending stairs, ex-

tremes of passion of all kinds, and especially of anger, should be avoided, as also exposure and irregular living. There is a second grade of involvement of either orifice which demands the same treatment in a more imperative manner, since its omission results in a loss of compensation, manifested by dyspnœa, palpitation, and præcordial distress, promptly relieved by the treatment above specified.

In a more advanced degree of interference with normal function, the treatment becomes different with the seat of the lesion. Let us first consider lesions of the mitral valve, and first the most common of all forms,—*mitral regurgitation*. The blood flows back into the left auricle during systole of the ventricle, at a time when all communication between these cavities should be cut off and the movement of the blood should be forward only. Averted for a time by hypertrophy of the left auricle, engorgement of the lungs ultimately results, with defective aeration of blood and consequent shortness of breath. This effect is at first counteracted by the increased effort of the right ventricle, whence its hypertrophy, with sharp accentuation of the pulmonary second sound heard at the left edge of the sternum.

So long as compensation is maintained by the supplemental action of an hypertrophied left auricle there is probably no sign of embarrassed breathing, or irregularity, or præcordial oppression, or digestive derangement; but as soon as the auricle begins to fail, the engorgement of the lungs begins, and the hypertrophy of the right ventricle comes to the rescue. And even *it* may, for a time, by the reinforcement it gives to the left auricle, effect the required compensation. But a suspension of the conditions which co-operate to help it, or a slight yielding of its muscle to the resistance to be overcome, demands assistance. The heart-tonics, of which digitalis is the type, are the agents pre-eminent for this purpose. That they operate by directly increasing the force of the right ventricle and left auricle, and thus contribute to the compensation, can scarcely be doubted; but that they help also to make the closure of the mitral orifice more complete by forcibly increasing the contraction of the left ventricle, seems also reasonably sure, since the experiments of Ludwig and Hesse have made it so plain how this can occur. They have shown that the mechanism for closing the mitral orifice does not reside in the valve alone, but that the surrounding muscles of the ventricle have an active share, not only in floating up the valve curtains, but in reducing also the size of the opening which these valve curtains have to close. This is, of course, less applicable in chronic valvular conditions where there is stiffness from calcareous change, than where regurgitation results from simple feebleness of muscle in anæmia and after the infectious fevers.

The effect required of this class of drugs varies with the degree of obstruction to be overcome, and the doses vary accordingly. Very often the heart requires but little steadying to enable it to accomplish the desired end, and moderate doses—such as 5 minims of the tincture of digitalis once in eight hours—suffice. On the other hand, it is a mistake to give too small a dose, and too great timidity often results in failure. Doses of 15 minims of the tincture of digitalis, every three hours, and corresponding doses of the other preparations are often necessary, and sometimes produce magical effects. The irregular and halting pulse becomes regular, the dropped beat is again taken up, the dusky lips become pink, the scanty urine is increased, the shortness of breath disappears, and calmness and quiet succeed distress and restlessness. As soon, however, as the desired effect is produced the dose should be lowered. The same principles apply to the management of the still more serious engorgements of the venous system which succeed upon tricuspid insufficiency, and produce dropsies and serous effusions. It is in the effort to drive the blood through the engorged veins that the left ventricle finally hypertrophies in this form of disease.* Its failure to accomplish this through its inherent power demands the same remedies which the right ventricle needed at an earlier stage to overcome the lung engorgement, and here it is that the large doses of cardiac stimulants are demanded.

This engorgement is also relieved by the use of purgatives, and as the portal area, including

* At this point I may allude parenthetically to the matter of hypertrophy of the left ventricle in mitral regurgitation. It has always been somewhat a matter of conjecture as to precisely when it occurs. It is commonly said that it is the result of the hypertrophy of the left auricle reinforced by hypertrophy of the right ventricle. But while these agencies doubtless contribute to a distention of the left ventricle and tend to dilatation, it is doubtful, to my mind, whether they tend to hypertrophy. For the idea of hypertrophy implies increased resistance, and there is no increased resistance with a patulous aortic orifice and a patulous mitral orifice, and it is only when the movement of the arterial current becomes delayed by the full veins that this condition of increased power, and therefore of hypertrophy, comes into play. So that it appears to me that while distention and enlargement of the ventricle is an early result of mitral regurgitation, hypertrophy is not.

the liver itself and the stomach, is especially involved, mercurial purgatives are especially indicated. Five to 10 grains of blue mass at bedtime, followed by a saline in the morning, relieve the congestion, and with it the nausea and indisposition to take food which attend it. Such remedies may be resorted to semi-occasionally. Sometimes the continuous use of small doses for a long time—say ½ to 1 grain of blue mass three times a day—are more efficient. The old-fashioned combination of calomel, squills, and digitalis—in doses of ½ grain of the first and 1 grain of the second and third three times a day, or smaller doses more frequently repeated—is sometimes most happy in its effect. Digitalis is a remedy always better intermitted to obtain its best effects, and a remedy, too, which, having once excited nausea, is thereafter badly borne. It does, however, sometimes happen that digitalis may be given continuously in moderate doses—say 5 minims three times a day—with great advantage, while its omission is followed by signs of failing compensation. It is generally recognized that digitalis produces also contraction of the arterioles, and that through this, in connection with the forcible systole, the arterial pressure is increased. This effect is desirable and useful in the early stages of mitral regurgitation, before tricuspid regurgitation and dropsy have set in. Later in the disease, however, when dropsy has set in, this effect militates against the diuretic action which is so much needed. How this may be overcome will be mentioned later.

Before leaving the subject of the heart-tonics in mitral regurgitation, it may be worth while to spend a few minutes on that of the relative value of the different preparations of digitalis. While testimony is generally favorable to the infusion as the most efficient remedy, yet, on account of convenience and accessibility, the tincture is mostly used. I have on many occasions reiterated that I was inclined to believe that the greater apparent efficiency of the infusion was partly due to the fact that it was generally given in larger doses. Thus, a tablespoonful, or ½ ounce, is not an infrequent dose of the infusion, while 10 minims, or 20 drops, of the tincture and 1 grain of the powder are not often exceeded. When it is remembered that a half-ounce of the infusion, as made by the U. S. Pharmacopœia, represents nearly three grains of the powder, or 20 minims of the tincture, one may understand why it is more efficient. Recently, however, I have thought the infusion better borne by the stomach than equivalent doses of the tincture. It may be that the cinnamon-water with which it is made has this effect.

Of remedies which may be substituted for digitalis, strophanthus should, perhaps, be first mentioned; not that it is always the best. Great expectations were excited when the results of strophanthus were first published by Fraser. It will be remembered it was reported as having all the effects of digitalis on the left ventricle without the contracting effect on the arterioles. The expectations entertained were not, however, realized by clinicians, and it soon fell into partial disuse. Recently I have resumed the use of strophanthus in much larger doses, having given as much as 10 minims, or 20 drops, every two hours for forty-eight hours, without interruption, and with good results. It is undoubtedly better borne by the stomach than digitalis.

Caffeine is an admirable heart-tonic in mitral regurgitation. I do not give less than 3 grains at a dose, but seldom give more, every three hours. When caffeine has been given in full doses for some time it produces mental symptoms quite characteristic, consisting in hallucinations not unlike those of delirium tremens, the patient imagining there are persons, animals, and other objects about him, and he is sometimes difficult to control. They, however, cease immediately when the drug is discontinued. Another effect of caffeine, which sometimes interferes with its usefulness, is its effect in inducing insomnia.

Sparteine sulphate is another heart-tonic which I have come to value very highly, especially where a diuretic effect is desired. The dose I have come to rely upon, after a good deal of experience, is never less than ¼ grain, increased to ½ grain, three, four, and five times a day.

In the much rarer disease of simple *mitral stenosis*, compensation is even easier and longer maintained by nature's own resources than in mitral regurgitation. Here, for evident reasons, there is no tendency to dilatation or hypertrophy of the left ventricle. On the other hand, hypertrophy of the left auricle becomes a conspicuous condition, succeeded by hypertrophy of the right ventricle, for the same reason as in mitral regurgitation.

Especially easy is it to maintain compensation if the narrowing is not too great and if there is a well-preserved left auricle and a strong right ventricle. If, however, the mitral narrowing is extreme, it is plain that the pulmonary engorgement will become greater if we increase the force of the right ventricle. Much

more cautious must we be, therefore, in the use of digitalis. Much more needed under these circumstances is relief to the pulmonary congestion, which in turn will relieve the right heart-tension. For the same purpose aconite is sometimes of advantage in these cases in the shape of small doses, say 1 minim or 1½ minims every two hours or every hour, watching its effect. It is possible that it is through a somewhat similar action that convallaria majalis—a remedy in which most observers have been disappointed—has been found useful by Dr. Sansom* in mitral stenosis, and also by the French school as represented by Germain Sée. By these observers it has been found diuretic, increasing the twenty-four hours' urine to 85 and even 115 ounces, reducing the pulse-rate, regulating irregularity, and improving the breathing, even when accompanied by tricuspid regurgitation. The doses given are 10 to 20 minims of the tincture three times a day, and it may with advantage be associated with caffeine, which alone sometimes acts better than digitalis. More effectual than either of these remedies to relieve pulmonary congestion is bloodletting, and repeated small bleedings are often of great advantage in this form of chronic valvular disease.

The principles governing the treatment of combined mitral regurgitation and stenosis are rather those of mitral regurgitation than of mitral stenosis.

And what shall be the treatment of *pure aortic disease?* It will be remembered that both aortic obstruction and regurgitation give rise to hypertrophy of the left ventricle, and that this is compensatory in character, for a time quite sufficient to ward off any unpleasant symptoms, and for a still longer time competent to do this when associated with a quiet life, the absence of excitement, of exposure, and of privation. Its well-marked degrees are accompanied with a powerful systolic impulse, a symptom which is of itself at times a source of great discomfort. Shall we, then, give heart-tonics which increase the force of this thumping blow? Certainly not. Shall we give aconite or veratrum viride, which slow the heart and diminish the force of its stroke? Not as a rule. But there are times when these remedies are indicated. When, as the result of over-exertion, or undue excitement, or gastric derangement, the heart is turbulently overactive, and even irregular in its rhythm, then often I have seen aconite in small doses—say 1 minim, or 2 drops, repeated every half-hour or hour, under close observation—act happily, especially when combined with bromide of potassium, say 15 grains. The tincture of veratrum viride may be given in slightly larger doses. As soon, however, as this period is past, the aconite should be omitted.

We want rather in this condition to find remedies which will tend to maintain the integrity of the heart-muscle. Such are strychnine, iron in small doses, arsenic, and nutritious, easily assimilable food. Especially useful are well-ventilated living- and sleeping-rooms, wholesome out-door life, with moderate, deliberate muscular exercise. On the other hand, the mountain-climbing advocated by Oertel seems irrational and dangerous. Every one who has had experience knows that the high altitudes are not well borne by cardiac cases of any kind.

Such measures as these tend to ward off the next stage, for sooner or later the integrity of the muscle of the ventricle yields, dilatation is added to hypertrophy, the auricular ventricular orifice enlarges, and we have mitral regurgitation. Then the treatment becomes that for mitral disease.

The treatment of aortic regurgitation and of aortic stenosis with regurgitation is similar to that of aortic stenosis.

Treatment of Dyspnœa.—As the dyspnœa is primarily the result of deficient blood-aeration in the congested lungs, the same remedies which force the blood through these organs, and thus relieve the congestion, tend also to relieve the dyspnœa, and often do so. When the dyspnœa persists, it is frequently caused by effusions into the pleural cavity, which are most promptly and successfully removed by tapping, although a blister may also answer the purpose. Repeated tapping may be necessary. Dyspnœa not thus relieved demands an opiate, and of opiates, under these circumstances, morphine is the best. One-quarter grain at bedtime, by the mouth or hypodermically, gives unspeakable comfort. Hoffmann's anodyne will sometimes relieve the milder degrees, and should perhaps be tried first, as it is always desirable to put off the use of morphine as long as possible. Sulphonal may be tried in full doses of 15 grains.

Treatment of Dropsy.—In like manner the measures that relieve the congestion and dyspnœa tend also to relieve the dropsy, but special means are also necessary. Here it is that full doses of digitalis are especially indicated, and at close intervals, every three hours, and even

* "The Treatment of some of the Forms of Valvular Disease of the Heart" (Lettsomian Lectures, 2d ed., with corrections, London, 1886).

every two hours. But these measures are often insufficient. And I have become satisfied, from actual and repeated experience, that an essential condition of the successful treatment of the more obdurate of the cases is the restricted ingestion of liquids. With the tissues water-logged and secretion insufficient, it is plain that copious liquid ingestion only increases the difficulty.

The principle of the Matthew Hay method is correct, but in practice it is impossible, because, with an already congested stomach, solids cannot be digested without an admixture of liquid, and further embarrassment results from the effort to dissolve them and from the presence of undigested residue. Therefore I not only omit solid food altogether, but reduce the liquid to a minimum that will sustain life,—not more than two ounces every two hours, and that only during the waking hours. To this I add the use of purgatives. While diuretics sometimes fail us, we can always secure an effect from purgatives. A daily morning dose of Epsom salts or Rochelle salts is given. Then, when action of the bowels begins, full doses of digitalis, or caffeine, or sparteine, associated with nitro-glycerin, are almost sure to be followed by copious diuresis, and when these cases start up, it is astonishing what quantities of urine are passed. I attach much importance to the association of nitro-glycerin with digitalis at this stage. A $\frac{1}{100}$ to $\frac{1}{50}$ grain may be given as often as the digitalis and simultaneously. Elimination by the bowels and kidneys being simultaneously stimulated, the sucking up of the interstitial fluid is greatly favored and often rapidly brought about. If these measures be associated with chest-tapping, which may be required, the diuresis set up is often enormous, while the swelling rapidly declines. As diuresis is established, or hunger sets in, the quantity of milk allowed may be increased, and when the dropsy has entirely disappeared, a cautious return to solid food may be permitted.

For irregularity of the heart-action and palpitation, which are more common in mitral disease, belladonna is also a useful remedy. I have had little experience with its combination with digitalis, recommended by Da Costa, but I do know that a belladonna plaster placed over the palpitating heart is one of the most efficient agents in subduing it. Nitro-glycerin is often very useful to the same end. One $\frac{1}{100}$ grain, rapidly increased to $\frac{1}{50}$ grain, three times a day, is the proper dose. Cardiac pain is also sometimes relieved by the same remedy.

ENURESIS IN CHILDREN.

CLINICAL LECTURE DELIVERED AT THE PHILADELPHIA POLYCLINIC.

BY J. MADISON TAYLOR, M.D.,

Professor of Diseases of Children at the Philadelphia Polyclinic; Assistant Physician to the Children's Hospital and to the Orthopædic Hospital, etc.

THE treatment of enuresis in children does not consist of the use of any one particular drug. It seems to me a misleading idea, which is frequently advanced in the medical journals, that good results from any particular drug, applied to a large number of cases, is of itself convincing. The parentage of disease, or even of disorders of function, is almost never single, and is frequently of very diverse origin. Much appears in literature on the treatment of this very troublesome disorder, being usually directed to the use of some one particular drug, and from its use conclusions are supposedly drawn, or else from some peculiar measures, the use of which is assumed to be of almost specific value.

Looking to the causes of bed-wetting in children, we have, of course, mechanical causes, as of adherent folds of mucous membrane in and about the genitals, occurring in both boys and girls; also mechanical irritation of foreign bodies, as of seat-worms; then come the diathetic causes, of which the chief one in early childhood is uricæmia,—a very common condition, and one which often escapes suspicion. Again, there are the reflex causes, which may be due to some combination of those already enumerated, or else the result of factors outside of these, such as emotion, the habits of the child's daily life, etc.

The instability of the nervous balance in children is a most interesting but ofttimes puzzling problem. The vaso-motor systemic variation and its clinical bearings you often hear me discuss here at times with conviction, at others conjecturally, but always as of fascinating interest.

In searching for the particular causes which bring about this disagreeable disturbance of function in the particular individual, it is very important to bear in mind that several of these causes usually coexist, and that, moreover, those which seem of least importance may in reality exercise the largest degree of potentiality.

Let us turn for a moment, then, to a consideration of the mechanism by which the bladder and urethra are controlled. As Dr. Lauder Brunton has pointed out in one of his lectures on therapeutic action of drugs, a failure of the right balance of power in the motor mechanism

of the bladder is due to two conditions of activity: first, want of power to evacuate; and, second, want of power to retain. So that, in looking to a therapeutic explanation for the involuntary passing of water in children, it is necessary to consider the possibility of the one or the other of these factors predominating. Again, back of this comes the question of secretion,—the necessity to consider whether the output of urine is sufficiently fluid, so that it may pass readily into the bladder, as, for instance, where a child takes an insufficient amount of fluids. Here the diathetic causes referred to, especially uric acidæmia, must be carefully studied. It does not seem to be well recognized that this condition is very common in little children,—quite as common, relatively, as in older people,—and that it is especially brought out by certain conditions; for instance, over-fatigue in play or in excitement precipitates the uric acid in the blood, and several conditions result, one of these being a temporary feverishness and general unrest, which goes by the name of febricula. It may also manifest itself as tonsillitis, or several forms of pharyngeal irritation, and even if such results as these do not arise, at least there is a precipitation of the uric acid in the urine, and this may cause several kinds of irritation, either in the kidney or bladder.

When the bladder becomes loaded with this over-acid urine, it is induced to make especial efforts to get rid of it, and where this cause has existed for some little while, a loss of control results in a mortifying outflow of urine during hours of relaxation, especially in sleep. This will also transpire even in waking hours. In states such as these, again, the urine is likely to be less in quantity, although sometimes it is in very great excess, and then we have the additional element introduced of overmuch urinary secretion and consequent hyperdistention of the bladder. Then there are many other conditions which produce relative overfilling of the bladder with irritating urine, as where it is shown to be phosphatic or loaded with alkaline carbonates. These are usually the result of depressed states of health from diverse causes. Again, there are paralytic states to be considered; and just here let me call attention to the very great importance of searching shrewdly for all possible evidences of slight palsies. It has been my experience to come upon children in whom slight hemiplegias with descending degenerations had occurred, which had escaped recognition by parent or medical adviser, except in the form of remote clinical findings which were not credited with having any such origin. A careful knowledge on this subject is one of the most important equipments in studying the differential diagnosis in children's diseases.

Also the palsies due to some recent acute trouble, either a central palsy, as polio-myelitis anterior, the so-called essential palsy of childhood where enuresis is occasionally a symptom, and certain peripheral disturbances, the most common of which, perhaps, is diphtheritic palsy, should be considered. These states may be only recognized long after the original malady has subsided out of sight, and, indeed, may be only its remote results, producing an inscrutable intermingling of causal factors which perpetually needs our utmost vigilance.

The mechanism of the evacuation of the urine, so far as I have need here to consider it, consists of the muscular activity, first of the fibres of the bladder, especially about the fundus, and the muscular fibres of the sphincter, which are voluntary. The one drug which has gained the most wide-spread confidence in the relief of enuresis is belladonna, because it would seem to decrease the pushing power of the bladder by quieting the involuntary muscular fibres of the fundus, thereby lessening the tendency to ready evacuation, by reducing the over-active fundus to normal action. Various other medicaments are supposed to do this more or less well, as the bromides and other drugs which enjoy the title of depressor motors. Hyoscine, whose general action is very like that of atropine, has an even more soothing or tranquillizing property than belladonna, and in the form of the hydrobromate of hyoscine has proven in my hands an extremely useful remedy for disturbed vascular states, especially those of over-excitation. The action of this particular group of vascular tonics is much more wide-spread than any local effect upon the walls of the bladder, of course having to do with lessening secretion, etc.; but it is well to remember that in these, as in the use of so many other of the drugs which have very evanescent influence, it is important to get the physiological action of the drug before you have a right to expect any advantageous effect.

Now, in using belladonna or hyoscine hydrobromate, which is rather better, it is necessary in producing a result to push to its physiological effect. This is very easily controlled, too, because, long before any harm can be produced, certain disagreeable symptoms, very easily and subjectively recognized, exhibit themselves, such as over-dryness of the throat and nose and dimming of vision, which not

only the mother, but even the little patient can plainly observe.

Again, it is my experience that in using these mydriatics for their vascular effect, it frequently happens that the desired result is obtained long before any objectionable symptoms are produced, and not only so, but these remote symptoms are very much delayed in a case of vaso-motor disturbance, the patient enduring a very much larger dose of the drug than he could under ordinary conditions. Therefore, as a practical suggestion in using belladonna in connection with the subject under discussion, it is necessary to systematically increase the dose given day by day until marked results are obtained. Thus, in a very few days it is frequently possible to either get a cure where all else has failed, or to recognize the inutility of the measure in the particular instance and abandon it for a better one.

Now, there is another drug which has been a good deal lauded in conditions of urinary disturbance,—namely, cantharides,—in which I have had very little experience, but enough to recommend its use under suitable conditions. This, in small doses, is believed to have the power of expediting the contraction of the sphincter muscle, hence enabling the individual to retain control over a bladder which itself may be normal. Here, again, it is important to slowly and cautiously increase this until some effect be noted, and, indeed, a combination between the belladonna, which tranquillizes an over-active fundus, and cantharides, which emphasizes voluntary control over the sphincter muscle, would seem to be a beautiful physiological rein through which an obstreperous bladder might be entirely controlled.

There are numberless drugs which have been recommended for this on mostly empirical grounds, and I have no doubt that a great many others can be found to act very nicely in certain instances, especially where the simple ones that I have suggested are found to be of no effect. It is scarcely worth while to discuss these, because they can all be reduced by any one to a working formula by a just knowledge of their physiological effects, and personally I very much dislike polypharmacy, or the mingling of hosts of medicaments, and expecting any definite results from such a jumble.

Along with the vascular tonics alluded to, it is very often well to add an auxiliary, as some form of alkali,—*e.g.*, bicarbonate of sodium or, better, phosphate of sodium,—where there is inactivity of the liver. This use of phosphate of sodium where the digestive tract is disturbed is very well worth remembering. In acid states of urine some alkali is needed, but these are generally of a tranquillizing nature and go well with either of the drugs discussed.

Now, the question of food must be considered as a very important collateral. It is a working axiom that the most tranquillizing food is that which is most uniform in character, with the smallest amount of residual waste, and the type of this is milk. You doubtless know perfectly well that most disturbances of urination in adults demand the use of milk alone, or, at least, as a very important basis of the dietary. By using milk you do another thing,—you reduce the uncertain factors involved in that manifold process—digestion—to the simplest working formula.

Continuing the discussion of the digestive tract, it is very important to be sure that the bowels are evacuated, and an admirable rule is to make sure of this evacuation at night rather than in the morning, at least, to have the bowel thoroughly cleansed, and better by an enema, a short time before going to bed.

There is one very pretty remedy suggested for nocturnal enuresis that deserves passing notice, although it has been of very little use in my hands, and that is the tilting of a bed so that it shall be higher at the feet than at the head, upon the theory that the urine pressing down against the sphincter, or the neck of the bladder, produces mechanical irritation, which causes that muscle to relax, and hence the urine to gush forth. Therefore it is recommended to lie at night with a complete reversal of our ordinary practice,—namely, with the heels high and the head low. I tried this measure very hopefully, and must say without any special measure of success, although I am prepared to admit that it may be a useful adjuvant to other measures in difficult cases.

It is frequently recommended, especially by our surgical brethren, to dilate the urethra, especially of boys, with the solid sound. This, it is conceived, produces some important counter-irritation, and may be the means of finding out a calculus in the bladder, of which enuresis is a symptom. I have known this to be of value, and hold it in reserve where severe measures are demanded.

Reflex irritation of the external organs constitutes a very considerable factor, many times, in this disorder. In boys it is very common to find adherent prepuces with narrow openings, extensive areas of adhesion upon the glans penis, and retention of secretion, which acts like a foreign body. Always inspect the penis when endeavoring to combat this and many other simple disturbances in boys.

Now, as to what shall be done here I also have very definite convictions. Circumcision is an extreme measure, although, I confess, at times a proper one. The circumcision practised by such an enormous number of very intelligent people—the Jews and Mohammedans—would seem to prove that this has a specific value. In a pretty long clinical experience, however, among children, I have usually found it quite sufficient to strip the parts thoroughly, making sure that readhesions do not occur. The method that I have pursued for fifteen years, and in a very large number of instances,—it being a routine measure with myself and my assistants at the Children's Hospital Dispensary and here at the Polyclinic,—is this: I take a blunt-pointed probe, or similar instrument, and cautiously run it around over the head of the glans from the frænum on one side, by small circular motions, to the frænum on the other, and then advancing the point of the probe a little, again rotate back to the first point to the right, and then over to the left, until gradually I have broken up the adhesions under the foreskin, and then, when this is done, I introduce into the cavity thus formed some lubricant, and make sure of its proper distribution. Afterwards the foreskin may be gently retracted; but if the opening be small, I postpone this for a day or two, when, again running the probe back and forth over the glans, very likely the foreskin can be retracted. Failing, I wait a few days longer, and if the os still be very constricted, I gently stretch it by some suitable instrument, as a pair of dressing forceps, and thus gradually secure my purpose. The mother is carefully instructed to wait a certain length of time after my manipulations, and then herself to retract, wash, and reanoint the parts; to be done at intervals of two or three days. A more rapid stripping may be safely done, but in the manner described everything needed is usually accomplished, and with the minimum of pain and discomfort to the child and of alarm to the mother, always an important consideration.

In little girls, irritations about the vagina must be looked for in the same way, although occurring less frequently. The prepuce of the clitoris is not seldom adherent, just as occurs in boys. The process of relieving it is very much easier in the girls, however, and yet of quite equal importance. It may sometimes be necessary in these procedures to use a little cocaine locally, but it is well to bear in mind that this is a very dangerous measure. I have known a mild solution of cocaine applied to the urethra, both in children and in adults, to produce most unexpected and serious depression.

There are numberless causes which it is impossible here to enumerate contributing to this disorder. Extensive skin-lesions, as of eczema or dermatitis, need to be eliminated in treatment.

THE TREATMENT OF ECZEMA OF THE LOWER EXTREMITIES.

By Milton B. Hartzell, M.D.,
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ONE of the commonest varieties of eczema met with in adults, especially in those past middle life, is that which occurs upon the legs. The frequency of its occurrence, the pain and annoyance it causes, and the obstinacy with which it oftentimes persists, make the subject of its treatment of more than ordinary importance. The long list of remedies and the great variety of methods of treatment to be found in text-books and journals might seem to render superfluous any further discussion of the subject; but these only serve to emphasize the truth of the statement that the curability of any disease is apt to be in inverse proportion to the number of remedies proposed for its cure.

It is not the purpose of this paper to discuss all the drugs which have been found more or less useful in the treatment of eczema, nor to propose new ones, but, selecting some of the old and a few of the newer remedies, to present in some detail the method by which these may be made serviceable. Notwithstanding the obstinacy with which the disease often resists treatment, the intelligent selection and persevering employment of the therapeutic resources at our command will in most cases, if not in all, result in cure. But the physician must not be content with the mere ordering of lotions and ointments; cases of eczema are to be treated, not merely prescribed for. Much may be accomplished, even with an indifferent remedy, if used with method; nothing but disappointment will result from the use of the best one, if improperly applied.

Although every variety of eczema may be found upon the legs, yet in most cases the disease appears in one of two forms,—either it is moist, red, and inflammatory in a marked degree, or it is dry and scaling, accompanied by a moderate amount of hyperæmia.

In the treatment of the first-mentioned form it is prudent to begin with the mildest applications, since even moderately-stimulating ones are pretty sure to aggravate the existing inflam-

mation. A method of treatment of approved value consists in the use of a mild lotion, such as black wash or a saturated solution of boric acid, followed by some non-stimulating ointment, as the ordinary oxide-of-zinc ointment of the Pharmacopœia. The lotion should be lightly dabbed upon the parts for five minutes, and allowed to dry before applying the ointment. If the oozing is very abundant, we may employ, instead of an ointment, the following paste:

℞ Pulv. amyli,
Pulv. zinci oxidi, of each, ʒii;
Petrolati, ℥ss. M.

This paste, being adhesive, affords better protection to the inflamed skin than the ordinary ointments, and is often preferable to them. Just here a word as to the manner of removing this paste. Its removal should not be attempted with soap and water, but it should be thoroughly softened with cosmoline abundantly applied, and afterwards wiped off with a soft cloth. The application of lotion and ointment should be made three or four times in the twenty-four hours, the frequency depending upon the amount of discharge and inflammation present. When the inflammatory symptoms are of moderate severity, a lotion of ichthyol, fifteen to twenty grains to the ounce of water, may be used with good effect, oftentimes causing a marked diminution in the amount of discharge, and lessening hyperæmia. This lotion should also be followed by soothing ointments, otherwise the skin becomes dry, tense, and painful. Recent experience leads the writer to the conclusion that much more benefit is to be derived from ichthyol employed as a lotion than when used in ointments. Treatment of this kind will in most cases transform the moist, red, burning skin into a dry, scaling, and itching one within a comparatively short time. When this has been accomplished, lotions are, as a rule, no longer so useful, and we may omit them, using ointments alone. In this stage of the disease we may prescribe with satisfactory results an ointment containing ten to fifteen grains of salicylic acid to the ounce; or, better still, we may use the above-mentioned paste with the same quantity of salicylic acid added. This salicylic-acid paste is in many cases a valuable remedy, causing rapid improvement. If, as is often the case, itching is a marked symptom, a paste containing ten to fifteen grains of menthol to the ounce will in many cases afford relief, or the menthol may be added to the paste of salicylic acid just mentioned. Carbolic acid is another well-known and effective antipruritic agent, and may be used in the same strength as menthol. It is well to remember, when prescribing for the relief of itching, that most, if not all, of the antipruritics are capable of exciting inflammation of the skin if used in too great strength, and that thus they may increase the patient's suffering instead of relieving it.

Among the newer remedies recently employed in the treatment of eczema, creolin promises to be a useful one, and from recent experience with it the author is inclined to regard it as of considerable value; the best results are obtained from it after the moist stage has passed. Although it may be used as a lotion, the following ointment is preferable:

℞ Creolin, ♏xv to xx;
Ung. zinci oxidi, ℥i. M.

Occasionally cases are met with in which greasy applications of every kind disagree, increasing the burning and pain to such a degree that their use is prohibited. Under such circumstances we must limit ourselves to the use of lotions and dusting-powders. In the early stages of the disease, when the oozing is abundant, the calamine lotion, with a small quantity of glycerin added,—

℞ Calaminæ, ʒi;
Pulv. zinci oxidi, ʒii;
Glycerini, fʒi;
Liq. calcis,
Aquæ, of each, fʒii,—

will often prove most useful, combining, as it does, the properties of a lotion and a dusting-powder.

Instead of the calamine lotion, a saturated solution of boric acid may be applied, followed by a dusting-powder of talc or the following:

℞ Pulv. zinci oxidi, ʒii;
Talc, ʒvi. M.
Sig.—Dusting-powder.

Among lotions which may be employed after the acute symptoms have subsided, mention should be made of the liquor carbonis detergens, which is distinctly of service in lessening the itching and hyperæmia. In the beginning its strength should rarely exceed one drachm to the pint of water; later it may be increased to two to three drachms to the pint.

An old and one of the most valuable remedies in the treatment of chronic eczema is tar in its several forms, but its use requires the nicest care and judgment, since, like many other valuable remedies, it is quite as capable of doing harm as good. It should never be used in the moist stage of eczema, but only

after the acute inflammatory symptoms have subsided, and then cautiously.

A favorite method with the author of employing this useful agent is to apply the following with a flat camel's-hair brush:

℞ Ol. cadini, ʒi to ʒiii;
Ol. amygdal. dulc., q.s. ad ʒi. M.

Brushed lightly over the diseased surface, this is much less likely than ointments of tar to cause undue irritation. If, after a few days' use, it causes any considerable degree of inflammatory reaction, it should be put aside for the time and some milder application used, such as the paste of salicylic acid mentioned above.

By thus alternating the oil of cade with some mild ointment we may often succeed in establishing a cure in cases properly selected.

If the eczema is dry, with a tendency to scale when it first comes under observation, we may proceed at once to employ slightly stimulating ointments and washes. Even here we should be careful to avoid overstimulation, lest we have the mortification to see our patient become worse instead of better. In these cases we cannot do better than begin with a paste of salicylic acid, ten grains to the ounce, which, at the end of five days or a week, may be replaced by an ointment of creolin, fifteen to twenty minims to the ounce of oxide-of-zinc ointment. If itching is a prominent symptom, the menthol paste already mentioned will frequently render good service.

As is well known, eczema of the legs is often accompanied or followed by chronic ulcers, which add greatly to the patient's suffering and are notoriously rebellious to treatment. No attempt will be made here to discuss at length the management of this troublesome complication, but the writer wishes to call attention to an agent which he has found of the greatest use in relieving the pain, which is at times excruciating. This remedy is resorcin, in the form of a three- to five-per-cent. ointment. While other remedies are perhaps superior to this one in promoting the healing of these ulcers, none are so sure to allay pain.

Internal treatment in eczema of the legs is of secondary importance, since we possess no remedy which, given internally, exercises any direct curative effect upon the disease. The bowels should be kept freely open, especially if varicose veins are present, in order that the return of the blood from the lower extremities may not be interfered with by a distended colon. A heaping teaspoonful of phosphate of sodium dissolved in a small tumblerful of hot water, taken in the morning upon rising, is a mild laxative, which is usually found as efficient as the bitter mineral waters and more agreeable.

In conclusion, the following points are worthy of special attention:

a. In beginning treatment always use mild applications. The observance of this rule will never be regretted; its violation may be.

b. Avoid the use of soap and water, using oil or cosmoline to remove scales and crusts.

c. The *manner* in which a remedy is used is quite as important as the remedy itself.

ACNE, ACNE ROSACEA, SEBORRHŒA, AND SYCOSIS.

NOTES FROM TEN YEARS' SERVICE AT THE PHILADELPHIA DISPENSARY FOR SKIN-DISEASES.

BY HENRY W. STELWAGON, M.D.,
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ACNE.—This disease was represented by two hundred and seventy cases, or a proportion of 6.5 per cent.; of these, one hundred and twenty-three were males and one hundred and forty-seven females. The ten years between the ages of puberty and maturity—between the ages of fifteen and twenty-five—furnished one hundred and ninety-nine of the cases. The youngest patient was aged thirteen and the oldest aged fifty-three. The relationship of age to the disease is shown in the following:

Years.	Cases.
Under 15	18
Between 15 and 20	108
Between 20 and 25	91
Between 25 and 30	28
Between 30 and 35	12
Between 35 and 40	8
Between 40 and 45	3
Over 45	2

In two hundred and thirty-seven cases the eruption was essentially confined to the face; in a proportion of these several or more scattered lesions showing themselves from time to time upon the neck and shoulders. In twenty-six cases the eruption was equally well developed upon face and back, and in seven cases it was limited to the back, in some of these latter no lesions, in others not more than two or three, appearing upon the face. In the cases involving the back, either alone or conjointly with the face, the eruption was quite abundant, and commonly extended down as far as the sacral region. The type of the eruption in eight cases was minutely papular, more of the

nature of comedo; in thirty-eight, almost purely pustular, the preceding papular stage being scarcely noticeable; and in one hundred and five cases it was papular or papulo-pustular, the pustular element being comparatively slight. In nine cases the variety known as acne indurata was represented, and in seven cases the type designated atrophic, in which the lesions, usually sluggish, papular, and small, leave behind pit-like scars. The remaining cases were of mixed type.

The most common etiological factor in acne, next to adolescence, was some disturbance of the gastro-intestinal tract. Functional and organic disease of the reproductive organs in females was not infrequently the active predisposing influence. Another etiological element in many of these cases was the fact that the work in which the patients were engaged was of a dusty or dirty character, or done in that kind of an atmosphere.

Constitutional treatment was entirely dependent upon the active etiological factor or factors; experiments with specific remedies were not fruitful of good results. The external treatment consisted first in keeping the skin clean and the ducts free by means of soap-and-water washings, hot-water sponging or steaming, and by pressing out the blackheads with a suitable instrument. Among the most valuable lotions were the following: One containing from twenty to one hundred grains each of zinc sulphate and potassium sulphuret to four ounces of water; a lotion (Kummerfeld's) containing two drachms each of sulphur, mucilage of tragacanth, and spirits of camphor, with enough lime-water to make the four ounces; one containing two drachms of sulphur, a half-ounce of ether, and three and a half ounces of alcohol; Vleminckx's solution, with six to ten parts of water up to the pure solution; a saturated alcoholic solution of boric acid; an aqueous solution of boric acid, with five to twenty grains of zinc sulphate to the ounce; and one containing five to forty grains of resorcin to the ounce. The most valuable ointments were: One of sulphur, thirty to one hundred and twenty grains to the ounce; the same ointment made more stimulating by the addition of one-half to two drachms of sapo viridis; two drachms of sulphur and a drachm of ichthyol to the ounce; one of ichthyol, twenty- to fifty-per-cent. strength; and one of white precipitate, twenty to a hundred grains to the ounce. The mercurials were seldom employed, as the sulphur preparations were by far the more valuable. In addition to the white precipitate ointment mentioned, one of oleate of mercury, five- to twenty-per-cent. strength, and a lotion of corrosive sublimate, one-half to two grains to the ounce, were sometimes prescribed. In many cases the deep-seated lesions were punctured, the contents pressed out, and the interior then touched with carbolic acid, applied by means of a pointed stick.

Acne Rosacea.—Eighty-six cases of this disease were met with,—thirty-nine males and forty-seven females. In forty-two cases the disease presented itself as a simple hyperæmic condition or a stasis, with or without one or several acne lesions; the seat of this type was the nose, or the nose and the closely-adjacent skin. In other cases—forty—there was more or less hyperæmia, with dilated capillaries, and acne lesions of a markedly inflammatory character; the nose, surrounding parts, and, in a number, the cheeks, forehead, and chin also were the seat of the disease. In two instances there was a diffused hyperæmia, with hypertrophy of the vessels and all the cutaneous tissues. Seventy-six cases were seen between the ages of twenty and sixty; four under the age of twenty, and these usually representing a cold hyperæmia of the nose, associated with an oily seborrhœa. The most common causes seemed to be digestive irregularities, uterine disturbances, and debility; in a proportion, which was not large, drink was an important factor.

Systemic treatment had for its aim a correction or removal of the predisposing causes, salines, antacids, bitter tonics, and digestives playing an important *rôle;* ergot, more especially in women and in those cases in which some uterine disturbance was the apparent factor, was sometimes of value. The main treatment was external. In those cases of sensitive skin in which the hyperæmic element and inflammatory condition were marked features, the early treatment consisted of mild astringent applications, such as calamine lotions and ointments, tannin lotions and ointments, and boric-acid washes with one or more grains of zinc sulphate to the ounce; later, in these cases, and at once in those of a more sluggish or colder type, stimulating applications were made. The most important of these were such as are used in the treatment of ordinary acne. Particular mention should be made of Vleminckx's solution, a compound lotion of zinc sulphate and potassium sulphuret, and ichthyol ointments. Simple multiple punctures, or these combined with electrolysis, were employed in persistent cases, and especially in those in which there was distinct capillary hypertrophy. For destroying the enlarged vessels, electrolysis or the bistoury was resorted to; to accomplish this frequent repetitions were necessary.

Seborrhœa.—Of this disease, one hundred and twenty-five cases, or three per cent., were recorded,—sixty-four males and sixty-one females. The type of the disease was in three instances oily, in fifty-four dry, in fifty-one mixed, and in seventeen it was not noted. The part affected was the scalp in sixty-nine patients, the face in thirty-one, the sternal or interscapular region in four patients, the scalp and face in fifteen, and the scalp and breast in six. Falling of the hair was especially complained of in ten cases. It was by far most frequent—fifty-six cases—between the ages of fifteen and thirty. In many instances the patients seemed otherwise in good health. On the other hand, in a large number the seborrhœic condition fluctuated with the patient's well-being.

Resorcin lotions, alcoholic or aqueous, ten to twenty-five grains to the ounce; thymol lotion, one-half to two grains to the ounce; an ointment containing five to thirty grains of salicylic acid and thirty to one hundred grains of sulphur to the ounce; an ointment of white precipitate, twenty to sixty grains to the ounce, with or without ten to twenty grains of salicylic acid; an ointment of oleate of mercury, ten- to twenty-per-cent. strength; and β-naphthol ointment, five to thirty grains to the ounce, proved to be the most valuable applications. As to constitutional treatment, experience showed that it was not always necessary, and when called for its character depended upon a study of the individual patient's needs.

Sycosis.—Forty-seven cases—over one per cent.—of this disease were treated. It was seen at all ages, but by far most commonly between twenty and forty, thirty-two of the cases having been met with in this period. The youngest case was eighteen, with the disease upon the chin, of a few weeks' duration; the oldest was seventy-four, with the disease upon the chin and upper lip, of four years' duration. In one instance—a patient, aged thirty-two—the disease had lasted several years, entirely disappearing, however, when the man kept himself shaved, reappearing immediately as soon as the hair was allowed to grow. The site of the disease was the upper lip in fourteen cases, in six of which it was immediately under the nose and associated with a catarrhal condition; in ten cases it was confined to the bearded parts of the cheeks; in four cases to the chin and neck; in four to cheeks, chin, and upper lip; in six to chin and cheeks; in four to chin and lip; in two instances to the chin alone; and in three the site was not recorded. Previous duration varied from a few weeks to ten years.

Treatment was almost exclusively local, although in debilitated subjects cod-liver oil was administered with benefit; calx sulphurata may have been of service in a few cases. The important treatment, however, was external. In acutely inflammatory cases mild, soothing applications were made until the inflammatory condition became subacute or sluggish, and then in these, as well as in all other cases, stimulating remedies were employed. Those which proved most successful were: Ointments of sulphur, twenty grains to two drachms to the ounce; oleate of mercury ointment, ten- to twenty-five-per-cent. strength; an ointment of ichthyol, one-half to two drachms to the ounce; a lotion of resorcin, one- to six-per-cent. strength; lotions of corrosive sublimate, one-fourth to two grains to the ounce; and Vleminckx's solution, with ten parts of water up to the pure solution. It was usually necessary to change from one remedy to another, more especially from a wash to an ointment, etc. A compound ointment, consisting of one drachm of sulphur, one-half drachm of balsam of Peru, and diachylon ointment to make the ounce, and one containing a drachm of sulphur and a drachm of ichthyol to the ounce, were especially useful in a number of cases. Shaving daily or every second day was insisted upon, and was an essential part of the treatment; depilation was advised in those cases in which suppuration was a marked feature, this procedure having a controlling influence in preventing destruction of the follicles.

ELECTRICITY IN GYNÆCOLOGY.

A Paper read before the J. M. Da Costa Medical Society.

By John M. Fisher, M.D.,

Chief of the Department of Diseases of Women in the Jefferson Medical College Hospital.

OF late years no subject has given rise to so much acrimonious discussion in many of our medical societies, and none has presented so great a variety of conflicting individual experiences and opinions in the columns of the medical press, as that of the therapeutic value of electricity in gynæcological practice. It has alike been vaunted as a panacea for almost all the ailments peculiar to womankind, in the hands of one class of practitioners,—the enthusiastic electricians,—and denounced as an object of responsibility for many of the diseases necessitating major pelvic surgery by another class,—the often over-confident abdominal surgeons.

While it is generally conceded that over-

zealous electricians have frequently allowed their imaginations to run away with their better professional judgment in their claims for the value of this agent, and through some ill-advised practices have done much to invite ridicule and even condemnation of their methods, and while it is a notable fact, on the other hand, that those among the surgeons who see naught in anything but abdominal section have had but little, and many of them no, experience in the use of the battery, sufficient, it is held, has been learned from quite another class of practitioners, so-called fair-minded men who lay claim to an equally large, though more varied, gynæcological experience,—physicians whose conscientiousness of purpose in their endeavors to sift truth from error cannot be questioned, however much they may err in the interpretation of reported facts; men, moreover, who prefer to acknowledge failure rather than consider recovery from an operation alone as identical with "cure," who are ever ready to remove a pus tube, but likewise willing to try anything within the limits of safety that promises to relieve an ovarian neuralgia or arrest a uterine hemorrhage, before resorting to the more heroic procedures of surgery,—we say, sufficient is claimed by practitioners of this class alone to carry conviction to the minds of a large number of the profession that electricity in certain selected cases will reduce fibroids of the uterus in size, that it will relieve pelvic pain, and that as a uterine hæmostatic it occupies a very important place.

In the presence of so much conflicting evidence, however,—positive, negative, and necessarily doubtful,—trustworthy conclusions by the profession as a whole, from a study of the literature on the subject, are practically impossible. This, in connection with the grave charge made by the opponents of this method,—viz., that gynæcological electricians generally are possessed of a certain elasticity of conscience in the making of diagnoses and in the determination of results following treatment that savors of deliberate deception and fraud,—make personal contact with the electricians themselves, their patients, and their methods a necessary requisite both before and during the electrical treatments and for an indefinite time after the last application in any given case has been made, if the exacting demands of the independent, nevertheless scientific, minds now in search after truth for truth's sake upon this all-important subject are to be satisfied,—important alike to the preservation of the honor of the gynæcological branch of the profession and to the safety of our patients.

Some of you here this evening no doubt recall the clinical lecture upon this subject delivered by me at the Jefferson Hospital about two years ago, an abstract of which appeared in the *Medical and Surgical Reporter* of April 11, 1890, under the title "Galvanism in the Treatment of Diseases of the Uterus." All the cases reviewed at that time had suffered from various forms of uterine disease, and, as indicated, had been subjected to the most approved plans of electrical treatment then in vogue; and while many of them had failed to derive any benefit, others had evidently undergone vast improvement, and some even were apparently cured.

A number of these patients have remained under observation ever since, and now, after a lapse of almost two years, it may be of some interest to note their present condition as compared with that immediately preceding the use of the battery.

"Of six uterine fibroids treated," the report states, "four were more or less hemorrhagic in their tendencies, and in every one of them the intrauterine application of the positive pole proved its hæmostatic properties, immediate and remote. . . . In only two of the cases has there been a positive and indisputable reduction in size." Three of these cases were seen within the past two months.

One—a woman, aged thirty-eight at the time she first came to the clinic—had a large, smoothly-rounded fibroid of the uterus extending to within an inch of the ensiform cartilage. "Between November 1, 1889, and November 21, 1890 (about one year), twenty-nine negative intrauterine applications of galvanism were made, the intensities varying between one hundred and one hundred and fifty milliampères, five minutes." A careful comparison of measurements made both before and at the close of treatment indicated a decrease in size of about one-fourth its original bulk a year previously. The measurements taken eight weeks ago, however, go to show that the tumor within the preceding year and a half had again increased in size, so that at present it by far exceeds its dimensions previous to the use of electricity. All the distressing pressure symptoms from which she suffered at the time have likewise become very much more pronounced.

The second case (clinically reported, but not published) is that of a patient, aged fifty-one, who, at the time she first presented herself for treatment, had multiple fibroids of the uterus, most of them subperitoneal, forming a large nodular mass reaching as high as the umbilicus, the size of which was very much influenced by

her periods, which recurred regularly, the same increasing in dimensions at the approach of the menses and decreasing during the flow, so that at the close of the "period" the tumor had generally diminished in bulk at least one-fourth. The size of the same was likewise influenced by the condition of the bowels. Besides the electrical applications, she was placed on a general tonic plan of treatment, with a heaping teaspoonful of Rochelle salts each morning. During the first three or four weeks the mass lessened in bulk very decidedly. The salts were then discontinued, and the size of the tumor again increased. Between November 21, 1889, and November 19, 1890 (one year), thirty negative applications (intrauterine) were made, with intensities ranging between fifty and one hundred and seventy-five milliampères, five minutes, with no material anatomical change. A recent examination shows that the tumor has remained stationary. She passed the menopause one year ago, and has since suffered less from the various reflex and pressure symptoms that proved so annoying previously.

The third case was a single woman, twenty-seven years old. She had a fibroid of the posterior uterine wall the size of a small lemon, with a history of painful menorrhagia extending over a period of four years, the flow continuing two and three weeks at a time, with intervals between "periods" of only eight and nine days. "Between June 27 and September 1, 1890, twelve intrauterine positive applications of galvanism were made, with intensities of from fifty to one hundred milliampères, five minutes. . . . The last application excited a certain degree of pelvic inflammation," after which the treatment was discontinued. Since July, 1890, this patient has menstruated regularly, the flow covering periods of eight and nine days, profuse, but not painful. The fibroid has augmented somewhat in size. She has no symptoms indicating permanent disability following the attack of pelvic inflammation, and enjoys excellent health otherwise.

Other cases appearing in the clinical report of April 11, 1890, and still under observation, are as follows:

"November 18, 1889, I was called to see Mrs. S., who gave the following history: Age forty-two; married; one child nineteen years old; no miscarriages. Six years ago she began to suffer with menorrhagia. She continued to grow worse with time, until within the last two years she seldom knew of a day that she was 'well,' the hemorrhages having become almost constant and at times so excessive that she was frequently obliged to resort to the use of tampons and to take to her bed for weeks in succession. She stated that she was confined to bed almost half the days of the year because of this trouble. At the time I was first summoned she had been in bed for more than nine weeks, flooding incessantly, save when this was temporarily arrested with tampons. Her weakened pulse, sunken eyes, blanched face, and the bloodless appearance of the buccal and vaginal mucous membranes at once told the story. . . . The uterus was found to be enlarged, of a globular form, and freely movable. The anterior lip appeared to be the seat of a small intramural fibroid. The uterine cavity measured four inches. Fibroid uterus was diagnosticated. An intrauterine positive galvano-chemical caustic application of fifty milliampères of five minutes' duration was made, with the result of arresting the hemorrhage at once."

Within the subsequent twenty-one days three additional applications of galvanism were made, the intensities of the same being gradually augmented to one hundred milliampères, five minutes. During this time she had the bleeding recur but slightly (November 30), and continue for a period of six days. For five months after the last galvanic treatment she continued to menstruate regularly, the periods covering four and five days. In May, 1890, "she was again seized with hemorrhages. I was out of the city, and the bleeding continued three weeks. On my return I found the patient in bed, blanched from loss of blood. I made a single positive application of galvanism, one hundred milliampères, five minutes, with the result of checking the bleeding within six hours."

Two years and five months have elapsed since then, the patient during all this time enjoying excellent health. Within the past year she has undergone slight discomforts incident to the menopause, but without any excessive hemorrhages. The uterus has been considerably reduced in size.

While admitting that the diagnosis in this case is somewhat doubtful, yet because of its very interesting features clinically we have quoted it somewhat at length. Another point of interest is the kind of intrauterine electrode that was used in the treatment. Bearing in mind the electrolytic action of a strong galvanic current upon living tissues, through which oxygen and acids are liberated and accumulate at the positive pole, and knowing the chemical affinity of the latter for some of the metals, instead of employing platinum, a non-corrodible metal in the presence of acids, we made

use of a copper electrode, a metal that is readily attacked by these agents. In doing this we not only obtained the hæmostatic properties of the current in other respects, but there was superadded the astringency of copper in an active state, owing to the action of the acids upon the electrode to form salts, and thus we have reason to believe another element favorable to arrest hemorrhage was brought to bear on the bleeding uterus.

"Mrs. G., aged twenty-one; married. I removed this woman's uterine appendages fifteen months ago for the cure of a septic salpingitis following a miscarriage. She made a good recovery. Soon afterwards, however, she began to have profuse uterine hemorrhages, recurring at irregular intervals, and continuing from one to three weeks. . . . On May 13, 1890, after she had bled for more than three weeks, a positive intrauterine application of galvanism was made (sixty milliampères, five minutes), with the result of arresting the bleeding within twelve hours." Since then she has had a mere "show" but once, extending over a period of two days, and is now in the enjoyment of excellent health.

"Mrs. H., aged twenty-four; married eight years; four children; one miscarriage nine months ago after six weeks' gestation, to which she attributes her present ailment. Ever since she has had a profuse bloody discharge recurring at intervals of two weeks and less, at times only a few weeks intervening between the attacks, continuing for from several days to four and five weeks at a time. . . . The uterus is retroflexed and movable, the cervix enlarged and highly congested, the uterine canal patulous and measuring three and a half inches."

Between June 16 and August 25, 1890, four applications of galvanism were made (positive intrauterine fifty to seventy-five milliampères, five minutes). Following this treatment she menstruated regularly and without pain, and was relieved of many of the distressing pelvic symptoms from which she had formerly suffered. About four months ago she was delivered of a baby. She is in the enjoyment of excellent general health at present, save that she suffers considerably from backache. The uterus is reduced in size, the canal contracted, but the flexion remains and is now more or less fixed.

"Bessie F., aged nineteen; married one and a half years; never pregnant; regular before marriage, continuing seven days, not painful. Shortly after marriage menstruation began to recur at shorter intervals than usual, until it appeared every two weeks, continuing from seven to ten days; clots were discharged attended wtih excruciating uterine pains. . . . The uterus was anteflexed and movable, the os the site of a mucoid discharge, the vaginal vault tender to the touch. Just before treatment with the battery was begun she had been bleeding almost continuously for more than a month. September 22 to October 10, 1890 (eighteen days), four positive intrauterine applications of galvanism were made; the highest intensity administered was sixty milliampères, five minutes. Three days after the second treatment the menses appeared, covering a period of five days, and painless." This patient returned to the clinic about three weeks ago, stating that following the use of electricity she menstruated regularly and without pain for a period of more than a year, after which the dysmenorrhœa gradually returned and has continued in an aggravated form ever since. Menstruation has been regular. She was referred to Professor Montgomery for further treatment.

"Agnes F., aged twenty-seven; single. Menses at seventeen; regular, one and a half days, and scanty. The very inception of the 'flow' was always attended with excruciating uterine pains, every moment contributing to her suffering for from five to six hours, rendering the free use of morphine, or whatever narcotic might be at hand, a necessity. . . . She applied to the clinic October 28, 1889. The uterus was in the normal position, movable, and presented cervical endometritis. A week later the cervix was dilated under ether. Four days subsequently the menses appeared, just as painful as ever. January 3, 1890, negative intrauterine galvanism was used (forty-five milliampères, five minutes). Menses came on in three days, and continued for four days, a longer period than ever before, with comparatively little pain." The fourth and last galvanic treatment was given on February 13, 1890, since which time she has menstruated regularly, the "flow" continuing for four days without pain.

"Mrs. G., aged twenty-eight; married two years and a quarter; no children." Suffered from an aggravated type of vaginismus, the mere touch of the vulva with the finger causing a neuromuscular spasm of the vaginal structure, the patient at the same time giving evidence of suffering pain, and evincing general nervous disturbance. "Between September 22 and October 6, 1890, five applications of galvanism were made (vagino-abdominal, fifteen to thirty milliampères, five minutes). After the third application the spasm and pain were entirely relieved, and coitus was satisfactory."

About two weeks ago this patient returned to the clinic, stating that the improvement following the use of the battery had continued for a period of about three months, after which she again began to suffer as formerly, and had thus continued to the present. Superadded to this she now suffers from excruciating uterine pains during menstruation. She was referred to Professor Montgomery for further treatment.

In this connection I desire to report several cases from the records of my private practice.

Miss K., aged forty-four. Always enjoyed good health until January, 1890, at which time menstruation was much prolonged and very profuse. The following month the bleeding returned, and continued to a greater or less extent until May 20, 1891, a period of fourteen months. Patient had lost considerably in flesh in the mean time, and presented evidences of profound anæmia.

Examination disclosed a fibroid of the anterior uterine wall, involving a portion of the cervix; this was of the dimensions of a medium-sized orange. Uterus movable. Os the site of a bloody discharge, uterine cavity measuring two and three-fourths inches. She was placed on a general tonic plan of treatment. Between May 20 and June 6, 1891 (seventeen days), four applications of galvanism, positive intrauterine, were made, intensities one hundred and fifty to one hundred and seventy-five milliampères, five to eight minutes. The first treatment was followed by an arrest of the bleeding within twenty hours. Three days subsequently (no bleeding) a second application was made. Seven days later the same treatment was followed by excessive bleeding, necessitating packing of the vagina. The bleeding continued. The fourth and last application was attended and followed by a gushing hemorrhage, to arrest which I was obliged to pack the uterus and vagina with gauze. Eight days later curettement of the uterus with a sharp instrument was performed, followed by irrigation, and the intrauterine application of Churchill's tincture with the iodoform-gauze pack. Two additional applications of a like character were made subsequently, the last one July 13, 1891, since which time she has had irregular hemorrhages at long intervals, generally slight, at times profuse, but never alarmingly so. She has gained in weight and her general health is good. The fibroid has gradually augmented in size, the cervix being obliterated in the growth, which now almost fills the lower pelvis and is quite perceptible for some distance above the pubis. Of late it has given her decided rectal and vesical distress. The patient would at no time consent to have the tumor removed by section.

Mrs. Q., aged forty-nine; married twenty years; no children. Five years ago she began to have irregular and profuse uterine hemorrhages, often extending over periods of two and three weeks at a time and even longer. Patient is of the neurotic type, and is extremely anæmic.

Examination disclosed a tumor that had evidently developed from the fundus and anterior wall of the uterus, extending to a point midway between the pubis and umbilicus, and encroaching upon pelvic contents so as to give decided rectal and vesical distress and pelvic pain. From its resistance a uterine myoma was diagnosticated. Between December 10 and 22, 1890, four intrauterine negative applications of galvanism were made, one hundred to one hundred and fifty milliampères. Three days after the last treatment found the patient in bed suffering from a violent attack of pelvic peritonitis, with septic infection, depending upon a profuse, offensive, muddy-looking discharge issuing from the cavity of the uterus. It will suffice to state that the patient was confined to bed for more than three weeks, giving the writer one of the hardest fights for a life that he had experienced for many a day. She ultimately made a good recovery. The tumor, in the mean time, had gone down to less than one-half its original bulk, the hemorrhages did not recur, the patient's general health improved, and now after two years she is in better health than for several years previously. The growth has since increased in size but slowly. No hemorrhages. The tumor originally, no doubt, was of a fibro-cystic character. The destructive process following the use of the electrode having extended, ulcerated into its cavity, with the consequent emptying of its contents.

Mrs. G., aged twenty-seven; married eleven years; three children. Always enjoyed robust health until confined with her first-born seven years ago. Puerperium was complicated by a pelvic inflammatory trouble confining her to bed four weeks. Convalescence tedious, but ultimately made a good recovery. One year subsequently she had a second attack of pelvic peritonitis, the result, she thought, of undue exposure. A third attack attended her last confinement seven months ago, confining her to bed three weeks. Menses reappeared seven weeks later, and recurred every three weeks, continuing four days, profuse and painful. Stated that she had been in delicate health ever since the birth of her first child. At the time

she first came under my care she complained of constant dull, aching pains, with a feeling of weight, bearing down, and soreness in lower abdomen and pelvis, especially pronounced in left inguinal region; aggravated by exercise. Profuse yellowish leucorrhœa; micturition frequent and burning; bowels costive, movements attended with increased pelvic distress; appetite poor; frontal headache; sleeplessness; is easily fatigued.

Examination revealed a right-sided tear of the pelvic floor, with beginning rectocele. The uterus was in the first stage of prolapse, enormously hypertrophied, but freely movable. The cervix was eroded, the os patulous and the seat of a profuse muco-purulent discharge. Bimanually the left vaginal vault disclosed considerable tenderness, but nothing tangibly abnormal. She was sent to bed, placed upon good diet and a general tonic cathartic plan of treatment, combined with vaginal antiphlogistic measures, consisting of copious hot-water injections, iodine to vault, and later on glycerin wool tampons. In two weeks she was directed to take light gymnastics and to spend a portion of her time in the open air. General faradization (no vaginal applications) was practised every second day. After three months' treatment she had undergone vast improvement. Her appetite was good, she had gained in weight, slept well, and no longer suffered from the pains in the side, nor from the various pelvic and other symptoms of reflex origin which had rendered life so miserable previously, save the sensations of weight, which returned whenever the uterus was deprived of its now accustomed support. The uterus had undergone but slight changes, save that it was very much less congested than previously and the erosion had disappeared.

With a view to determine the safety of making intrauterine applications of galvanism, bearing in mind the clinical history of the case, I had an eminent gynæcologist of this city (not an electrician) examine the case with me. We agreed upon a diagnosis of chronic parenchymatous metritis, depending upon a diseased state of the endometrium, without any extrauterine complications. Encouraged by the glowing accounts of others in the treatment of such conditions, I made a single application of galvanism, negative, intrauterine, fifty milliampères, five minutes. Three days subsequently the patient was taken with violent pains in the left inguinal space. Her suffering grew worse daily. Seven days later abdominal section disclosed a large recent accumulation of pus involving the left Fallopian tube. She never rallied from the shock of the operation, and died within forty-eight hours.

Here we shall leave the subject without special comment on any one particular case, each of which bears the lesson of its own teaching. It will suffice to say that electricity is an element capable of some good in properly-selected cases, but that it likewise is a most potent agent for evil is, we think, abundantly demonstrated in the foregoing report. Who is to make the selection of cases adapted for electrical treatment? Specialists in this line of practice had better be more modest than heretofore in their claims relating to the making of gynæcological diagnoses. We can say without fear of an attempt, even, at contradiction by any one of the more experienced and successful gynæcological operators of to-day, that no man, however skilful, can be absolutely certain that his diagnosis in a given case, simple as it may appear, represents the whole truth. Almost every abdominal section for disease reveals some complication that was not discovered by external examination, and every operator of any note of our acquaintance readily admits that each case has its own individual peculiarities. We have heard Dr. Joseph Price admit his inability to make a diagnosis, even after operation, with the diseased specimen in his hands, previous to section. Case after case has been reported in which ectopic gestation has been diagnosticated as hæmatosalpinx, pyosalpinx, and ovarian cystoma. We ourselves have been present when men eminent in this line of work have diagnosticated an ectopic gestation, fibroid tumor, a pregnant uterus, extrauterine sarcoma, a retroperitoneal sarcoma, ovarian cystoma, an ovarian cyst, fibroma, and one case we recall in particular in which an interligamentary cyst was said to be an ectopic gestation, an ovarian cyst, and a uterine fibroma, at as many different sittings, and that, too, by the same man, one of our leading gynæcologists.

After a three years' service in the Gynæcological Department of the Jefferson Hospital, and after witnessing what we have at the operating-table, in connection with the sad experience that attended our work in several instances with the electrode, we consider that the difficulties and uncertainties besetting gynæcological diagnosis are a bar to a very large extent to all forms of intrauterine treatment. If, as pointed out, pathological conditions of such gross character are so difficult of proper recognition, how much more difficult is it, in the vast majority of cases, to diagnosticate a catarrhal, or even a suppurative, salpingitis, where the presence of fluid material in the tube is

limited to a few drops of pus or muco-pus, giving rise, in many instances, to but little, if any, distress, yet possessing all the latent properties of intense energy if its smouldering embers are but stirred into activity, as they often have been, by an irritant intrauterine application!

Of all the specialties in medicine, none is entitled to a better trained hand and the exercise of a maturer judgment than that of gynæcology. In the present state of our knowledge of pelvic disease, and with the facilities at hand to acquire legitimate diagnostic and operative skill, no man has a right to do anything above the vaginal vault, gynæcologically, especially in our large cities, save when the exigencies of a given case or the circumstances surrounding the same demand it, unless he has first served a well-appointed apprenticeship with some experienced operator. Scores of women are unnecessarily mutilated, and many lives sacrificed, by men of insufficient experience, who have nothing more to guide them in their eagerness to do an abdominal section, or make an intrauterine application of electricity, than a "pain in the side" or a discharge from the cavity of the uterus.

1527 Wallace Street.

HOW TO OPERATE FOR HEMORRHOIDS.

A Clinical Lecture on Diseases of the Rectum, delivered at the New York Post-Graduate Hospital.

By Charles B. Kelsey, M.D.

GENTLEMEN:—I want to show you to-day something of a curiosity. It is simply the largest mass of hemorrhoids I have ever seen or operated upon.

The patient, as you see, is an old man—nearly seventy—and he is a physician. Few men, except physicians, would ever go as long without treatment as he has done, for he has suffered many years. He tells me, also, that his father and his brothers have all suffered in the same way, and that his brother had three operations at intervals.

Well, we shall not operate three times on this man, in spite of his doubts as to whether a single operation will effect a radical cure.

He has asked me whether there is anything hereditary in piles. I do not know. That many members of the same family may be similarly affected is certain. It has been my own experience to operate upon three generations of the same family; but, beyond the almost universal prevalence of the disease, I have never been able to decide upon any hereditary influence.

And now, as I stretch the sphincters, you see two immense tumors roll out of the anus, one on either side, and so well developed are they that they have become quite distinct from the coats of the rectum proper and are only attached to it by pedicles of mucous membrane and blood-vessels. They have grown larger and larger as time has progressed; they have become more and more like foreign bodies every year; the act of defecation and extension has pulled them away and separated them from their first position, until now they are quite pendulous and pedunculated, and the pedicle, though broad, is very thin and composed of blood-vessels and a little connective tissue, covered over by the normal mucous membrane. The tumors on each side are, as you see, fully as large as large hen's eggs.

A gentleman asked the other day, after seeing the clamp and cautery operation on a case of rather small tumors, what operation we did for the large ones, his idea being that the clamp, though it might be safe enough for small or even moderately large tumors, would not do for cases of any magnitude. This is a good time to answer his question. I have never operated by any method on tumors of this size, but I propose to now upon these with the clamp and cautery, and I am willing, in the presence of you all, to make this a test case. If the cautery fails to control the bleeding, if the man has any accident from hemorrhage, I will in the future practise the operation by the ligature in preference to that by the cautery.

The test is not a fair one. Accidents have occurred by the ligature, and only a short time ago a man nearly bled to death in one of our hospitals after Whitehead's operation; but if this man bleeds we will admit that it was due to a fault of the operation, and will seek a better one.

You perceive that the pedicles here on either side of the rectum are too large to be included in my clamp, even though it is rather longer in the blades than those usually sold. The first step, then, will be to divide one of these tumors into two equal portions with the scissors. I cut boldly into it parallel with the axis of the gut, then take one-half, make a deep groove on the cutaneous aspect of the pedicle with the scissors to hold the clamp, apply the clamp in the groove firmly, amputate the tumor we are dealing with, and thoroughly cauterize the stump. The same is done with the other section, and you see the result,—a stump the length and size of the index-finger on one side of the anus, which has

a firm eschar covering it, and which is perfectly dry. The opposite tumor, about the same size as the first, is treated in the same way: first divided into two portions from apex to pedicle, then each portion separately clamped and cauterized.

Now, you may ask, why do I not tie these pedicles instead of cauterizing them, and I will answer plainly that it is simply to prove to you that in this very unusually severe case the cautery will control the bleeding as safely and as efficiently as the ligature.

The great fear in the minds of the profession regarding this method of operation is the fear of hemorrhage; it is the fear that was in the mind of the student when he asked what operation we did on the big cases. And I simply want to prove to you that no matter how severe the case, the clamp is as safe as the ligature. This I have always held and still hold. It is the basis of the whole question. Given a single exception, a single case in which the cautery, thoroughly applied, fails to control the bleeding from the stump of an amputated pile, no matter what its size, and the operation falls to the ground.

But my contention has always been that if the cautery were as safe as the ligature in this one particular, then it was for other reasons a better operation than that by the ligature, with which it must be compared; better in this, that there is no ligature surrounding a mass of tissue left in the gut, no string tied tightly around a nerve as well as the blood-vessels, and often causing intense pain till it sloughs away. In consequence of this we have less pain, less vesical disturbance, and a more speedy recovery.

Do not understand that I am an opponent of the operation by ligature, for, unless I believed the clamp and cautery a little better, I should always practise it. It is safe and sure and speedy. The patients have some pain, some of them a good deal, but they are radically cured without accident. Allingham says the cautery is at least six times as fatal as the ligature. By the same reasoning it would not be hard to prove that the ligature was at least twelve times as fatal as the clamp. Nothing will lie like figures,—except facts. Allingham can undoubtedly find a thousand cases of the clamp operation in which the mortality shall be six, and oppose them to a thousand cases of the ligature in which the mortality is zero, and with very little trouble I can reverse the figures. The truth seems to me so manifest that I lose patience with this form of argument. Accidents and death may and will follow any operation which is thrown out to the profession at large to be practised. I know one practitioner whose death-rate with the clamp is one hundred per cent., he never having operated but once, and lost his case from primary hemorrhage. I know of deaths from the ligature. I know of bad results from Whitehead's operation. But the operation by the ligature, when properly done, is as safe as any operation can be, and that with the clamp is as safe in correspondingly good hands as that with the ligature.

We all have our favorite methods of doing things. Personally I claim only for the cautery that my patients get well a little quicker and with less trouble and suffering than they do with the ligature, but the moment I am convinced that it is any less safe than the ligature I will abandon it. I attack no other operation. I do not claim any additional safety for the clamp; but, as far as my knowledge of it goes, I am ready to defend it from any attacks on the score of additional risk.

Let us go still further into this question. Here we have two operations equally safe, equally radical, each as satisfactory as any surgical procedure can well be, and by one or the other, as you may prefer, every case of piles may be cured with little suffering or inconvenience to the patient. Have we any others? None, I am sorry to say, as good as these, to my own mind, and yet there are many that may be practised. Take, for example, the operation described by Whitehead, which consists in dissecting off the mucous membrane and submucous connective tissue (the latter at least in part) from the anus upward for about an inch and a half, amputating it by a circular incision, drawing down the stump and suturing it to the margin of the skin. By thus dissecting up and cutting off a cylinder of mucous membrane and hemorrhoids, the whole "pile-bearing area" is removed, and a recurrence is thought to be impossible. Much stress is laid upon this impossibility of recurrence, as though the operation were in this respect more radical than those already mentioned; but such I do not think to be the case. Scarcely any operation can be devised less likely to be followed by a recurrence than that of the clamp or the ligature, and the experience of all surgeons will bear out this statement. I have personally never operated twice on the same patient for hemorrhoids, except in two cases, and Allingham, with a still longer experience, says the number of cases in which he has been called upon to operate the second time can be counted on his fingers. One of my cases you saw here, and

under ether it was seen that there was no tumor, but merely a vascular area, which sometimes bled after the straining of defecation. Indeed, this charge that the time-honored radical operations for piles which have been relied upon with perfect confidence by surgeons for years were not radical, struck me, at the time Whitehead's operation first came into vogue, as amusing, and I have never been at all inclined to admit that a new procedure was at all in demand for any such reason, though, if it had any other recommendation, I was perfectly willing to adopt it as a substitute. I have never found that it had, and have never, therefore, practised it, though many others have done so and with good results. In this matter I agree with the late Henry B. Sands, who said that the ligature had answered him so well all his life that he had no idea of abandoning it for anything else.

And yet there are objections to Whitehead's operation by excision, as there are to most surgical operations. The objections to this are chiefly two.

When the circular incision, which should be made at the junction of the skin and mucous membrane, is made a little too far outside, a very serious eversion of the mucous membrane is the consequence. The skin, when loosened by the incision, easily retracts. The stump of mucous membrane, when united to it after the amputation, readily slides down and out of the anus, and when firm union between the two has taken place, the natural muco-cutaneous orifice of the bowel is changed into one covered entirely by mucous membrane, which soon becomes raw and ulcerated by exposure. There have been several of these cases in New York. Personally I have been consulted in three, and I have known of others; and all that I have seen or heard of have resulted from operations in different New York hospitals, except one. I add this because it might be thought that such a result could only result from ignorance or carelessness. It may be a fault of the operator and not of the operation, but it seems a fault to which very good operators are liable.

Exactly how to treat such a condition it may be difficult to say. My own idea would be to destroy the everted and adherent mucous membrane (for it is not a prolapse in the ordinary acceptation of that word, but a substitution of mucous membrane for skin) and allow a cicatrix to take its place, trusting to dilatation to prevent stricture of the anus. However, I have never been able to convince one of these patients that they had not had all of the operations for piles they cared to submit to.

The other objection comes from failure to get union by first intention between the skin and the stump of mucous membrane. When the stitches tear out, the membrane slides back into the rectum, and a circular granulating wound more than an inch in breadth results. When this has cicatrized, a very pretty stricture of the anus is the natural consequence. This also I have seen where it was not to be attributed to any fault of the operator.

There are many other ways of removing hemorrhoids besides these three. Crushing is one, but to my mind so poor a one that I have never used it. There are also various methods of excising the tumors and suturing the mucous membrane after the tumors have been cut off, so as to get immediate union. In fact, it requires no great ingenuity to invent some new technique in accomplishing their removal; but as all the operations lead to the same end, and all of them are more elaborate and require more time than either the clamp or the ligature, and have no advantage over them in certainty of result or avoidance of suffering, you see me here still keep to the operation I much prefer. Allingham gives about one minute to the ligature of an ordinary case of piles after he gets to work; the clamp is fully as speedy; both can be done while the patient is in the primary stage of anæsthesia; both are as satisfactory as any operation in surgery. For these reasons I have never given much time or thought to the various more or less elaborate methods of accomplishing the same end as they appear from time to time in the journals.

So much for the radical cure of hemorrhoids. But the average man only wants his hemorrhoids cured when he is suffering pain,—that is, if they are to be cured by an operation. And as the pain of the disease is very intermittent, and, as a general rule, he suffers only a certain amount of annoyance and discomfort from them, it follows that he will seek relief in many ways, and if he does not find it, will carry his piles with him through a long life down to the grave. It is, therefore, a very desirable thing to be able to do something for these patients that shall satisfy them,—something that will stop the bleeding and protrusion and yet shall not be "an operation" that will compel them to be laid up. The knife they fear, ether carries with it a great dread, and the ligature is not pleasant to contemplate.

Can we meet this legitimate want on the part of the public? In a measure, yes. We can by several means arrest bleeding. By more serious measures we can reduce the size of the

tumors till they shall no longer protrude at stool. The relief will probably not be permanent; the pain may be considerable; it is, in fact, the old story of cutting off the dog's tail by inches to avoid hurting him; but if the patient prefers that kind of surgery, after it has been explained to him, there are ways of doing it without any special danger, and the practitioner is justified in using them. It is true that only enough of the caudal appendage will probably be removed to make a very unsatisfactory stump in the eyes of the surgeon, but if the patient wishes it done, I hold that, as long as no false promises are made, it is a justifiable concession to his fears and desires.

The best known, but I think not the most desirable, method of accomplishing this is by the injection of carbolic acid into the tumors. With a fine and clean hypodermic syringe inject from 5 to 10 drops of a ten-per-cent. solution of carbolic acid, in a menstruum of equal parts of glycerin and water, into the centre of each hemorrhoid. When it works nicely there will be a little smarting only at the time and soreness for a few days after, and the foreign substance will set up just sufficient irritation to cause some consolidation around it, and hence decrease in the vascular supply, with decrease in size and in the amount of bleeding. After all of the piles have been injected,—some once, others several times,—the patient will consider himself cured. The tumors will no longer bleed or protrude at stool, and he is very grateful. The relief will probably last three or four years in a favorable case, and then he will return, and you will find a decided change. The tumors now are harder and firmer to the touch, and the skin of the margin of the anus is more involved in them. They are, in fact, covered by muco-cutaneous tissue instead of velvety mucous membrane, and they are much less amenable to a second course of the same treatment than they were to the first.

This is the course of a favorable case, but all cases do not act in this way by any means. The variations from it are manifold.

Some day you will make the usual injection, as you have done dozens of times before, and your patient will suffer great shock. Exactly why it is hard to tell, but he will either faint on the table or will get cold; his pulse will become weak; you will think he is about to faint,—as, indeed, he is,—and you will rush for stimulants. After an hour or so he will probably be able to leave the office and go about his business, but it will be many days before you will cease to wonder what was the matter with him. Finally, you will call it nervous shock, but you will not be anxious to inject him again. On that score, if your experience is like mine, you need not have any uneasiness. He will not come back. You have lost your patient.

In another case, after the injection, your patient goes out of the office with only the usual smarting and pain; but, instead of subsiding, it goes on increasing, and after a few hours you will get an urgent request to come to him at once. In fact, you may get a telegram, as I once did, saying that the patient is suffering the "torments of the damned." You go with a hypodermic syringe in your pocket, and as soon as you arrive you use it,—this time for morphine, however. After awhile the pain is overcome, but again you don't know what has happened. The man is all right after a day or two, but he never has another injection, and again you have lost your patient.

In another case the history will be as follows: After the usual glowing prognosis of no pain, no interference with business, etc., you make an injection, and tell your patient to come again in a few days. At the end of a week he appears. Perhaps he has been in the house since the last visit, and perhaps he has dragged around at his business, but he has certainly had a good deal of pain. On examination you find quite a deep slough, the size of a silver quarter, covering the point of injection. That particular hemorrhoid, you may be sure, is in a fair way to be cured, and you inject another one. The same result follows, and after four or five weeks of pain and partial disability, if the sloughs heal kindly, the patient is discharged from treatment. He has had rather a hard time,—much harder than either of the radical operations would have caused him; but still he will not again be troubled for some years, and if he is satisfied, perhaps you may be. I have noticed, also, that after three or four years, when these patients come around again to talk about having something done for their piles, they do not take kindly to the idea of a second course of treatment by injections.

Exactly why sloughing will result in one patient with weak solutions, and will not in another, though much stronger solutions are used, it is not easy to say. Such, however, is the clinical fact.

Another class of cases will give you still more trouble. After the first injection, or perhaps not until after the second or third, the patient will go to bed and send for you on account of his pain. You find on examination a painful tumor at the verge of the anus, the size of the end of the thumb, covered partly by skin and partly by tense mu-

cous membrane. This is a marginal abscess. It means much pain and confinement to bed for several days. Then it bursts, generally on the skin, and again on the mucous surface, and a short fistulous track half an inch or an inch in length is left between the two openings. This may heal spontaneously, or may have to be cut. In any event, the patient has carried the treatment as far as he will, and you will get no credit.

In another class of cases you will be surprised at the powerful effect of your remedy, and you will get a partial cure from a single injection, but not much to your gratification.

On the day after the injection the patient will send for you, and you will find not only the pile you injected, but all his piles, inflamed, prolapsed, and strangulated. You will be surprised to find how much more hemorrhoidal disease he has than you supposed when you made your injection. You keep the man in bed, apply poultices and anodynes, give a cathartic to act on the portal circulation, and leave the case to nature. Part of the protrusion will slough off, and when the inflammation has subsided and the protruded mass returned, the patient will be partially cured.

But these are not all the complications. There is a peculiar blind, internal, submucous fistula which often owes its origin to an injection of carbolic acid. The piles may be cured as far as the patient knows, but instead of being well, he has a new symptom,—a sense of discomfort, often of actual pain, in the rectum, back, legs, and urinary organs. He goes from doctor to doctor, and nothing is found, till finally some diagnostician more thorough than the others finds a drop of pus coming out of the mucous membrane, just above the internal sphincter, and a small probe passed into the point from which the pus exudes will follow a submucous fistulous track for an inch or more. The injection did not cause a slough over its point of deposit and allow of the escape of matter in that way, but the pus, when formed, followed the course of the needle and escaped at the point of puncture. The same patient may have two, three, or even more of these fistulæ,—one, in fact, for each injection.

These are the minor accidents and complications of this method of treatment. There are graver ones,—large abscesses, deep and extensive perirectal inflammations resulting in bad fistulæ or dangerous illness, and ending in permanent disability or death. More fatal results have been reported in this country from carbolic-acid injections in the last ten years than from all of the radical operations combined. A fatal result I have never seen, but all of the other accidents have happened to me personally, and combined they constitute a perfectly satisfactory reason for your not seeing me use the treatment here. Almost every week you see me operate with the clamp and cautery, and during the three years of this clinic you have never seen a failure to cure and never any complications such as have been described. Therefore I say to you, if you want to cure your patients and sleep comfortably yourself, use one of the radical operations. If you want to try palliative treatment, go very gently. Carbolic acid is only a palliative at best.

Besides carbolic-acid injections, there are several other means of relieving the worst symptoms of hemorrhoids. What is most often complained of is perhaps bleeding, and this can often be controlled for a time with applications of fuming nitric acid. The piles are extruded, wiped free from mucus with a pledget of cotton, and touched freely on the mucous surface with nitric acid on the end of a match. If the acid is kept on the mucous surface there will not be very much pain at the time, though there will be soreness afterwards. Of course a superficial slough is formed, and when this has separated, and cicatricial tissue has taken its place, there will be some decrease in size and a cessation of the bleeding. The relief, however, is but temporary.

One form of hemorrhoid (the nævus-like growth which is flat and very vascular) can be cured by a thorough application of nitric acid. This is the form that bleeds so profusely, and yet does not consist of a tumor with increase of connective tissue, but merely of a circumscribed spot of greatly increased vascularity. In larger tumors, however, only palliation is to be expected. Unless very deep and unjustifiable sloughs are produced, there will be no great diminution in size, and hence no marked amelioration in the protrusion.

Instead of nitric acid the galvano-cautery may be used for the same purpose, and cocaine may also be employed if the patient is very sensitive. As long as the cautery is applied superficially, no great harm will result and temporary good may be done. If the cautery be plunged into the substance of the tumor a number of times, you can effect a cure lasting a number of years, but again you run many of the risks of an injection of carbolic acid,—that is, you are likely to cause suppuration in the tumor and marginal abscess. The danger of diffuse inflammation does not seem to me so great with galvano-puncture as with carbolic-

acid injections. In the one case your irritant can be more definitely limited in its effect than in the other.

These, in addition to the ordinary rules for medical treatment, regulation of the bowels and the action of the liver, avoidance of excess, especially in alcohol, etc., constitute practically our only resources in the palliative treatment of hemorrhoids. You will soon learn that the moment you grow ambitious to cure by these palliative surgical measures, the measures will be found very ill adapted to the purpose. My advice to you would be to use your palliatives gently and not to promise much from them; and when you find a patient willing to be radically cured, employ either the clamp or the ligature. In this way you will avoid failure on the one hand and accident on the other. Above all, make your patient understand what you are going to try to do beforehand.

SIMPLE PHOTOPHOBIA TREATED BY THE CONTINUOUS CURRENT.

Dr. John Hern (*Ophthalmic Review*, February, 1893) describes cases in which the chief symptom is photophobia, without discoverable lesion with the naked eye or by ophthalmoscopic examination. The patients were usually anæmic, of nervous temperament, and in several instances were convalescing from a severe illness. They did not exhibit ordinary hysterical symptoms. He thought the photophobia was due to retinal change, the exact nature of which was undetermined. The treatment he advocated was the application of the continuous electric current, applied in the manner advocated by Buzzard.

This method, described by the author in the "Transactions of the Ophthalmological Society of the United Kingdom," vol. ix. p. 191, was intended for applying electric currents directly in cases of oculo-motor paralysis. It is performed as follows: A moistened plate rheophore is applied to the nape of the patient's neck and connected with one pole of a Leclanché battery. The operator, grasping the other rheophore, well wetted, in his left hand, and securing good contact with the skin of his patient, applies the index-finger of his right hand to the patient's globe in the situation of the various external muscles of his eye. The finger is covered with a single thickness of well-moistened muslin; the conjunctiva should be previously rendered insensitive by cocaine. The strength of the current advised is from one and a half to two milliampères, and the alternate application and lifting of the finger by closing and opening the circuit gives rise to a feeling of a slight electric shock in the terminal joint of the finger. The operator should first test the strength of the current upon the patient's cheek. The point of the finger thus applied acts as a sentient rheophore, and can be applied with nicety and delicacy to various parts of the eye, the operator being constantly aware by feeling in his finger of the strength of the current employed.

THE MEDICO-ELECTRIC EYE-BATH IN THE TREATMENT OF SCLERITIS AND EPISCLERITIS.

Dr. Joseph Norsa (*Archives of Ophthalmology*, January, 1893) uses the following method in the treatment of the diseases mentioned in the title: A two-litre glass vessel, filled with a lukewarm one- to two-per-cent. solution of salicylate of lithium, is placed two metres above the head of the patient. This reservoir communicates, by means of a rubber tube, with an ordinary eye-glass; at the bottom there is a perforation, through which a metal tube is passed. The outer end of this is fastened to the rubber tube; the inner end projects about half a centimetre above the opening of the eye-glass. A small stop-cock placed on the metal pipe serves to connect or disconnect, as desired, with the water reservoir. There is also an opening in the side of the vessel, provided with a stop-cock, in order to let off the water. Then, finally, he requires an electric apparatus, preferably with a galvanometer, for developing a constant current; also a milliampèrometer is desirable in order to regulate the exact strength of the current. One electrode communicating with the metallic plate, properly covered and dampened with salt water, is laid upon the cervical sympathetic, while the other is connected with a small screw on the metal covering of the eye-glass. It is immaterial whether the positive or negative pole is placed on the eye or glass. This can be regulated by the sensitiveness of the patient to the one or the other. The electric bath is applied to each eye for about five minutes, and it is unnecessary to instil cocaine beforehand, as even nervous and feeble patients can bear it easily. This treatment can be repeated every day, as the hyperæmia of the conjunctiva, and especially that of the ball, after this treatment, disappears, at the longest, in two hours. The patient experiences only a mild and easily-borne sticking sensation of short duration.

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Leading Articles.

THE INFLUENCE OF SOME OF THE NEW ANALGESICS IN INCREASING THE SUSCEPTIBILITY TO COLD.

WHILE it is true that antipyrin, acetanilide, and similar compounds were first introduced into medicine for the purpose of reducing fever temperatures, it has never been generally recognized by experimental or practical therapeutists that they are capable of reducing the normal bodily temperature to any extent, and for this reason many physicians have administered these remedies, since they have been employed so largely for the relief of pain, with little regard to the question of exposure of the patient to cold. We believe that it is important that this influence of these analgesics should be more widely recognized.

While it is true that they do not reduce normal bodily temperature, it must be remembered that both scientific and practical research has proved them capable of decreasing the production of animal heat, and we can therefore readily understand that their administration to a person who is about to be exposed to cold might readily result in his suffering from what we ordinarily call a "cold," by reason of the fact that his heat-centres fail, under the influence of the drug, to manufacture the increased amount of heat required by the body, owing to the exposure. For this reason careful questioning will nearly always develop the fact that the patients exposed to cold after taking these drugs suffer from a considerable degree of chilliness, and, if they catch "cold" readily, develop more or less severe congestion of localized areas, which may pass away in a few hours, or develop into acute attacks of coryza, laryngitis, bronchitis, or even pneumonia.

It is probable, too, that these drugs not only cause the patient to take cold by reason of their influence over the nervous mechanism governing the production of heat in our bodies, but also that their influence over the vaso-motor system aids in producing this result. Not that the drugs necessarily produce vaso-motor depression, but rather that in their action they render the vaso-motor system less active in adjusting itself to the circumstances with which it is surrounded. Thus the function of the normal vascular system, when the exterior of the individual is exposed to cold, is to cause peripheral vaso-motor contraction, with resulting internal congestion. This prevents the patient from becoming chilled, and allows the blood to remain in the warm, well-protected portions of the body. If this does not take place, the blood in the peripheral capillaries becomes chilled, and general chilling of the surface occurs, so that the actual amount of heat in the body is decreased with more or less disastrous results. As we have said before, we believe that the employment of these antipyretic and analgesic drugs for the relief of various forms of pain markedly increases the susceptibility of patients who may be exposed to cold.

THE TREATMENT OF CARDIAC DISEASE.

IN the last number of the THERAPEUTIC GAZETTE we published a leading article upon the subject of "Aconite in Cardiac Disease." In this number we are glad to be able to present our readers with a valuable practical paper by Dr. Tyson upon this subject.

It would seem that in no other condition affecting mankind is there a greater need for the reiteration of facts governing the therapeutics of disease than is afforded by these disorders under discussion. Practically the cardinal point to be remembered is that cardiac disorders are to be divided into the classes of functional and organic, and that the organic disorders never require medication unless there is insufficient or too great hypertrophy of the cardiac muscle. In other words, the question of compensation must govern the physician in his treatment of a case more than the loudness of a murmur which he hears, or the distinctness of any præcordial thrill which he may recognize by palpation. It is true that digitalis very justly has come to be regarded as the sheet-anchor of cardiac therapeutics; but for this very reason it is often given when it is not indicated, and is perhaps as much abused as it is used properly. Every practitioner who has had large experience in the treatment of cardiac disease will have long since met with the unfortunate discovery that digitalis will not do everything for a case of cardiac trouble, or perhaps that its administration very distinctly increases the sufferings of an individual patient, or again that, after he has obtained valuable service from this drug for a sufficient length of time to give both himself and the patient great confidence in its efficiency, it more or less suddenly loses its power for good, and the physician finds himself at his wits' end to discover something which will take its place. It is under these circumstances that he begins to appreciate the value of other cardiac medicaments, much less valuable for the majority of cases, but more valuable in individual instances.

Probably the first drug to which he will turn will be strophanthus, which Dr. Tyson has spoken of so favorably. There are, however, two effects produced by strophanthus in susceptible persons which may prevent the physician from employing it as freely or for as long a time as the cardiac signs warrant,—namely, the development of some gastric irritability, or, on the other hand, an active diarrhœa, which requires brisk remedies to control it, and which speedily becomes difficult of control if the physician, not recognizing its cause, persists in the employment of the strophanthus. We confess that, in so far as sparteine is concerned, we have not obtained the favorable results which have been recorded by many European clinicians; partly, perhaps, because we have not given it a sufficient trial, or more probably, because we have only administered it in those very difficult cases where digitalis has failed, and therefore cannot be said to have given it a fair chance. It would seem that, if any good results are to be obtained from sparteine, we should use the sulphate, in doses of 1 to 2 grains, given as frequently as two to three hours. The administration of the drug, therefore, is entirely different from that of digitalis, which is given at longer intervals because of its well-known prolonged effects. Six years ago the glucoside of *Adonis vernalis*—adonidine—received high praise from Botkin in Russia and from Continental clinicians, while attention was attracted to it in this country by a paper by J. C. Wilson. The dose of adonidine, it will be remembered, is from 1/8 to 1/4 grain three or four times a day. It is not a remedy which always proves itself of value, but is nevertheless one which is to be remembered when the more popular drugs fail to bring about good results.

We are confident that in many cases of cardiac disorder, particularly if it is associated with renal disease, the physician fails to pay sufficient attention to the condition of the vaso-motor system. Renal disease, as is well known, rapidly produces disordered function in this part of the circulatory apparatus, and we are apt to ignore the important physiological fact that an intact vaso-motor system is quite as important for the proper action of the heart, and the carrying on of nutrition, as is an intact cardiac mechanism. Although we are taught in the text-books—and physiological research endorses this teaching—that digitalis is a powerful vaso-motor stimulant, it frequently occurs in practical medicine that in the human being this drug exercises its greatest influence upon the cardiac muscle, causing it to send out large waves of blood with considerable force into a vaso-motor system, which is relaxed by disease and which has not been correspondingly stimulated by the digitalis. Under these circumstances the combination of belladonna or atropine with the digitalis in sufficient quantity to exercise vaso-motor stimulation without producing drying of the mucous membranes of the throat or disturbance of the pupillary reaction, will frequently render the administration of digitalis successful when, under other circumstances, it would fail.

THE TREATMENT OF TETANUS BY MEANS OF IMMUNIZED BLOOD-SERUM.

IT is now generally accepted that tetanus is an infectious disease due to the action on the body of certain poisons produced by the tetanus bacillus. Positive evidence as to the

microbian nature of the affection has been presented by Kittasato, who isolated the specific bacillus from the pus of a tetanic patient, and produced the same disease by inoculations of pure cultures.

Behring, experimenting in the same line, showed that animals may be immunized against tetanus infection, and that the serum of such animals, if injected into the tissues of other animals, prevents the development of tetanus in them, and even cures this disease after symptoms have become well developed. Even when this blood-serum from immunized animals is brought into contact with the tetanus bacillus outside the body, the toxic properties of the latter are completely destroyed. Following the therapeutic indications offered by this line of experiment, an attempt was made to cure by means of serum injections a baby aged nine days, who was attacked in its eighth day by trismus neonatorum. Six injections, each containing 1½ minims of the serum of the rabbit immunized against tetanus were made. This treatment had no marked beneficial effect.

An important fact brought out by Behring's later experiments is, that for the purpose of securing immunity a large quantity of serum is required, and that this quantity bears a certain ratio to the body-weight of the animal immunized. He also discovered that the curative power of the blood of the immunized animal increases in direct proportion to the time the animal has been rendered proof against tetanus. Thus, while one gramme of serum from an animal immunized but a few weeks would not protect an animal weighing more than 100 grammes, after a course of many weeks, or months, serum from the same immunized animal would protect from tetanus any animal weighing 500 or even 1000 grammes.

In the course of a year Behring has succeeded in obtaining, from the horse, serum which has an immunizing power of 1 to 5,000,000, so that 1 gramme of such blood would immunize five thousand animals, each weighing 1000 grammes. This applies, however, to animals not yet inoculated with the minimum fatal dose of tetanus. When the serum is used for the purpose of curing the disease which is already well developed, a much larger quantity must be employed; certainly no less than one-thousandth part of the body-weight of the animal to be cured. Thus, in the case of a man weighing one hundred and fifty pounds, at least one and a half of the serum will be required, and even then good results could only be expected in the early stage of the disease and where it is not of the most acute type. In the acute cases the dose to be employed would necessarily be much larger. As to the exact quantities to be employed in such circumstances, and as to the expectation of cure, experience alone can show. Though the facts above detailed have been known sufficiently long to have allowed of a thorough clinical trial of the method, a review of current literature shows that this has not yet been made.

Rotter reports one case successfully treated by full injections of Behring's serum. The patient, a hostler, suffered from a lacerated wound of the left hand, which was treated according to antiseptic principles. Eight days later the left arm became somewhat stiff, and seven days after this—that is, fifteen days after the time the wound was inflicted—trismus, difficulty in swallowing, stiffness of the neck, and general disturbance of health followed. The following day the symptoms were more marked, the typical features of tetanus being well presented. On the sixteenth day 66 grammes of immunized horse-blood, to which was added a half-per-cent. solution of carbolic acid, were injected beneath the skin of the back. The next day 50 grammes of horse-blood were injected into the region of the pectoralis major. The following day 45 grammes were injected. For the next two days 50 grammes a day were employed. A little over a week after this the patient was practically well, although there was persistence of tonic local contractures.

This case shows at least that the injection of a large quantity of immunized blood-serum in this case—250 grammes, or a little over one-half of a pint—was quite harmless.

The first injections during the time when reflex excitability was very marked were painful. The subsequent ones did not occasion any inconvenience. Strict cleanliness was observed in the method of obtaining serum and during its injection.

The report of a single case, of course, proves little, yet it is interesting to note what the chance of such a patient surviving without treatment would have been. The incubation period was in this case eight days; from this time the disease steadily progressed for fourteen days, when the injections were begun. For two days the symptoms were unaltered; they then gradually disappeared.

The prognosis of tetanus depends upon the length of the period of incubation and upon the rapidity with which symptoms develop. The shorter the time between infection and the manifestation of the disease the more unfavorable is the case.

Richter, in an analysis of two hundred and

twenty-four cases, found that of twenty-five cases in which the disease developed between the first and fifth day after the wound, only one was cured, or four per cent. Of ninety-one cases with an incubation of six to ten days, 4.4 per cent. were cured. Of the cases with an incubation of longer than ten days, an average of about twenty-five per cent. were cured. In applying these figures to the case just described, it is evident that, since the incubation period was less than ten days, the patient's chances of recovery were perhaps about one in twenty.

The development of this particular case, however, did not necessarily point to a fatal termination. Thus, a clinical study of the disease shows that, aside from the incubation period, if in the course of one or two days after the first symptoms the muscles of the whole body, with the exception of the arms, are involved in strong tetanic spasms, death almost invariably follows. Some perish in the first few days; in some the acute stage passes to a chronic condition, finally resulting in death; very exceptionally, symptoms gradually become less marked and the patient recovers. In the mild form of tetanus,—that is, where the symptoms come on very gradually, often with a prodromal period of several days,—a favorable result is by no means uncommon. The lightest of all cases are those in which the only symptoms are moderate trismus and some stiffness of the neck. These cases usually recover. In general, according to Richter, the prognosis of traumatic tetanus is extremely bad. Thus, of 717 cases, 631, or eighty-eight per cent., died. Of the 40 cases where recovery ensued, 13 suffered from the localized form of the disease.

Although Rotter's case is not conclusive, it will require very few added cases to enable the clinician to arrive at a clear judgment as to the value of Behring's injection treatment. It must, however, not be expected that injections undertaken a few hours before death, or, in severe cases, used in insufficient quantities, will be followed by a cure.

Eight cases of traumatic tetanus, cured by injection after the method of Tizzoni-Catani, have been reported by Italian surgeons. Tizzoni, stimulated by Behring's researches, extracted from a dog immunized against tetanus, an alcoholic precipitate, which he injected in the form of a watery solution into the tissues of his patients. Of the eight cases treated by this method, in all but one the incubation period was ten days or over. Injections were begun at the earliest on the twelfth day of infection, the latest on the twenty-eighth day. In one case where the incubation was eight days, the disease developed in a very light form. In not a single case was the tetanus of the acute progressive type, although abundant time was allowed in all for such a form of the disease to develop before treatment was inaugurated. As to the effect of the injections, the improvement was immediate in four cases, but did not appear in six to twelve days in the remaining four.

Rotter, in reviewing the results of Tizzoni's injection, states that in not a single instance can it be proved that this treatment was responsible for the cure, since none of the cases belonged to the class in which death is the almost invariable rule. In considering the element of chance, it is interesting to note that Socin saved nine of twelve cases of tetanus observed by him, though four were of the most acute type. Socin's treatment did not differ from that generally obtaining in his day, and he attributed his low mortality in these cases to good fortune. There is no reference in the Italian publication to cases in which injections were unsuccessful, though there is every reason to believe that when the disease is well advanced and is of a fulminant type, it is beyond all hope of cure; hence the thought is suggested that a complete report, including all the results, has not yet been given out.

If the published reports of laboratory work are to be accepted, it seems clear that it is possible to immunize animals against the tetanus bacillus without affecting their general health, and that by means of injections of the serum of such immunized subjects, animals suffering from well-developed tetanus can be cured. Since tetanus is to-day an exceedingly rare disease in the human, there will probably never be a question as to an attempt towards immunizing healthy men. The treatment of the developed disease is, however, not so successful in its outcome that we can afford to reject the lessons taught by results obtained in the experimental laboratory. Probably the most popular and most successful treatment of tetanus, and that taught by Wood and Hare, consists in keeping the patient at rest in a darkened room, providing food and stimulants, and quieting the spasms by full doses of bromides,—*i.e.*, 30 to 60 grains every two hours,—while chloral is administered at night to induce sleep. This treatment is unavailing in acute traumatic cases; hence the eagerness with which the scientific world is awaiting the clinical results of the laboratory methods applied to the human. It is now months—indeed, years—since a new therapeutic system, based upon antitoxines, im-

munized serum, etc., was heralded; the new era seems close upon us, but it is slow to dawn. Even Pasteur's injections against rabies are regarded with increasing distrust. The clinical evidence in favor of the new treatment of tetanus is not yet so convincing as to force us to admit its superiority to established methods of treatment. Of ten reported cases, one—not treated with sufficiently large doses of serum—perished. The remaining nine all belonged to the class of cases in which spontaneous recovery is by no means exceptional.

At most it can be claimed that the injection method did not in itself do harm, and that an unusually large percentage of the few patients thus treated recovered. We believe it is impossible to obtain either Tizzoni's antitoxine or Behring's immunized hare serum in this country, hence we shall have to look to European surgeons for the data upon which will thrive or perish this latest and most promising herald of the therapeutic system which promises so much and which has done so little.

VOLTAIC ALTERNATIVES IN OPTIC-NERVE ATROPHY.

THE treatment of cases of atrophy of the optic nerve, independently of those which depend upon some condition amenable to ordinary medicinal agents, and seen before the atrophic process is far advanced, has not a brilliant record of cures to its credit. The fact that an interrupted galvanic current passed through an eye which is practically blind, but in which the perception of light is not lost, gives rise to a sensation of light, suggested the possibility that electrical stimulation might be productive of good results in atrophy of the optic nerve. Practically, every text-book, in the section devoted to the management of diseases of the optic nerve, advises in general terms the trial of galvanism if atrophy is present, although the statements in regard to its exact value under these circumstances are exceedingly contradictory.

Leber, writing in 1877, refers to the use of the constant current, with which, as he says, many observers have secured improvement or have checked the atrophic process. He expresses regret that definite rules are not at hand which shall govern the manner of applying the electrical application. Erb, in his well-known book on electro-therapeutics, after quoting a number of cases with more or less favorable results, states that they prove that the galvanic current possesses a considerable curative power in otherwise hopeless diseases of the optic nerve, which are manifested in the form of the so-called white atrophy, and quotes the conclusions of Dor, that forty per cent. of the cases may be "really and notably improved." He gives definite directions as to the manner of application, advising "the transverse passage of the current through the temples, with a variable direction of the current, in order to reach the optic nerve within the orbit; then longitudinal conduction from the neck to the closed lids (when neuritis predominates, the An chiefly on the eye, the Ca for a short time and stabile; after atrophy has occurred, the Ca chiefly on the eye, after the application of the An, stabile and moderately labile). Finally, galvanism of the sympathetic according to the ordinary methods."

In contrast to this, and, indeed, in contrast to a good many of the half-hearted statements in text-books, is the assertion of Noyes that "electricity has failed to vindicate its pretensions to any real value, although, by its capacity for exciting phosphenes, it fosters the hopes of a credulous incurable."

If the literature of the subject, which is considerable in amount, were gathered together and analyzed, many reports would be found asserting very positively that benefit has accrued to patients with optic-nerve atrophy by the use of the constant current, and a goodly number would also appear which relate precisely the opposite experience. Most surgeons must have treated cases of atrophy of the optic nerve with galvanism, or, at least, with electricity in some form or other, in which they have been led to believe that even if there was no actual improvement, at least the field of vision widened out and for a time the degenerative process appeared to be checked. Hence it is with a good deal of interest we refer to a recent paper by Dr. Charles Eugene Riggs, read before the American Electro-Therapeutic Association at its second annual meeting in October, 1892, and published in the *Journal of the American Medical Association*, March 4, 1893, calling attention to the value of voltaic alternatives in atrophy of the optic nerve,—a method of treatment which, the author states, he has learned from Dr. Webster Fox,—and recording several cases with marked improvement in vision by the use of this method. In order to show why the reversal of the polarity of the electrodes is more energetic than simple closures, and at the same time to explain the physiological action of the remedy, Dr. Riggs quotes De Watteville as follows: "When the electrode on the nerve is alternately changed

from anode to cathode, and from cathode to anode, a series of closure excitations are given, which fall alternately in the polar (when the electrode becomes cathodic) and the peripolar (when the electrode becomes anodic) region respectively. Now, in every case the excited region had just before been under anodic influence, and physiology teaches us, as we shall presently demonstrate on the human nerve, that the instant the polarizing current ceases to flow the anodic region passes into a state of increased excitability. This augmentation is the more marked the longer the anodic influence has lasted. We see, therefore, how it is that voltaic alternatives act more powerfully than simple closures of the circuit, and that their action is intensified by previous current duration. We understand also why rapid reversals are the more effectual; for the positive modification after an electro-tonus diminishes rapidly after the circuit has been broken; the longer the interval which elapses between the polar change of the electrode the less the hyperexcitability of the nerve will be, until it has returned to its normal state."

With the great improvement in electrical apparatus, with the exact means of measuring the strengths of currents, and with the definite rules for the use of galvanism which have been formulated in recent times, Leber's regret, expressed many years ago, that the method of applying this medicinal agent is not properly described, no longer obtains. It remains to be proved, however, whether any real and lasting benefit occurs. True, there are plenty of cases on record in which it is stated that vision, both peripheral and direct, has been much benefited, even, as Dor reported, in so many as forty and fifty per cent. of the cases. On the other hand are the numerous observations of exceedingly competent observers, who say with Gowers, "I have tried it in many cases, but without results which could reasonably be ascribed to the treatment." In answer to this it may be urged that the treatment was not properly applied; that, for instance, the full physiological effect of electricity was not obtained as it may be by voltaic alternatives. Therefore, as Dr. Riggs suggests, those who have opportunities of observing numbers of cases of optic-nerve atrophy should give the method a fair and thorough trial, and should put new cases upon record, or report those that they have already observed treated in this manner.

It is evident, however, that these reports should not be made without the most exact measurement of vision, direct and indirect, before, during, and after the treatment, and that they should not be reported until a sufficient length of time has elapsed to demonstrate that the improvement has been a permanent one. Otherwise false hopes may be raised similar to those occasionally engendered by the temporary alleviation with hypodermic injections of strychnine, to be succeeded by a depression all the greater when the remedy suddenly loses its effect, the vision steadily sinks, and the field of vision as steadily contracts; or like those which have arisen on account of surprising temporary improvements in certain types of chronic choroiditis and iridochoroiditis under the influence of subconjunctival injections of the bichloride of mercury, to be followed by a return to the old state of affairs, or to one even more unfortunate.

Another point of importance in the reporting of cases is, as far as possible, to state exactly the character of the optic-nerve atrophy which is under treatment, and also, if possible, the precise cause of the malady. This deficiency is notable in many of the records, sometimes, no doubt, because it is practically impossible to supply these points, and sometimes because the reporter has been satisfied, as in one list, to call them "exquisite examples of optic-nerve atrophy." One thing is sure, that Dr. Riggs's hope that workers in this line will lay before the profession the results of their experience should be realized, and that the relation of galvanism to the treatment of atrophy of the optic nerve should be more certainly settled than is possible from a perusal of the literature at the present time.

Reports on Therapeutic Progress.

KATAPHORESIS.

At the recent meeting of the Electro-Therapeutic Association the subject of kataphoresis was introduced by PROFESSOR J. HOUSTON. He said that by the term kataphoresis is meant the introduction of drugs or medicaments into the body by means of an electric current, and this is dependent upon electric osmose, or electrical endosmose, as it is more commonly called. Kataphoresis is simply a variety of osmose, and by the term osmose is meant the unequal diffusion or admixture of liquids of different density through the pores of a diaphragm, separating the liquids from each other. Each liquid tends to mix with the other, but the flow is unequal in strength, and hence there is a higher level produced in that liquid towards which the

greater flow is directed. The endosmotic current is that current which is directed towards the higher level; the other is called the exosmotic current. The phenomena of osmosis are intimately associated with those of diffusion. Ordinary osmose appears to be unquestionably accompanied by an electric current which is passed through the two liquids across a porous wall which separates them; the movement of the liquid takes place in the direction of the current, and therefore the electro-endosmotic current is the one which passes through the septum in the same direction as the electric current. By a similar process, called kataphoresis, fluids may be made to pass through the skin or other membrane of the human body by the action of the electric current. As the causes of osmosis are not well understood, and our knowledge of the causes of electro-osmosis is still more limited, a study of the phenomena of kataphoresis from the standpoint of the physicist must fail, unless supplemented by the studies of the physiologist and the practising physician. The following are the author's conclusions:

1. That the effects of electro-endosmose, or kataphoresis, are more general than heretofore suspected. Thus, whenever an electric current is sent through the human body, whether for ordinary therapeutics or for some definite kataphoric effect, there must be a true kataphoresis, for there must be produced a flow of the fluids in the body in the direction of the current. It follows, therefore, that the effect of the passage of a current must be to engorge certain parts and to deplete others, and it is possible that the therapeutic value of the current may arise mainly from such action. Its beneficial effect may, however, also be dependent upon the establishment of a more uniform condition of pressure in the various tissues, or on the transference of morbid products. This probably explains why in so many cases one electrode only is active.

2. Since kataphoric action presumably accompanies the passage of an electric current through the human body, the resistance of the various parts of the body cannot remain uniform, even while their resistance is being measured,—a condition very different from that of ordinary conductors. Any change in resistance, due to kataphoric action, should be symmetrical.

3. There are two varieties of kataphoresis,—(1) normal kataphoresis, by means of which a disturbance is effected in the distribution of the constituents of the human body by the passage of any electrical current; and (2) abnormal kataphoresis, by which fluids are introduced into the human body from without by the passage of an electric current.

"Its Uses in General Medicine," by DR. W. H. MORTON, of New York.

DR. MORTON said that he had been in the habit of excluding chemical osmosis from the phenomena of kataphoresis, for the reason that osmosis may exist without kataphoresis, and one may even antagonize the other. There has been much confusion concerning the direction of the flow connected with kataphoresis, for solid particles, when suspended in a fluid, pass from the positive to the negative, or may pass from the negative to the positive pole. Again, methyl blue goes from positive to negative pole, and eosin from negative to positive. Such facts show that to a certain extent the term "anodal diffusion" is a misnomer. Regarding this subject, however, three broad statements may be made, which are well sustained by various observations. They are,—(1) in a fluid or semi-fluid conductor, like the human tissues, there is a movement of the fluids from the positive to the negative pole; (2) extraneous fluids, maintained in contact with the skin or mucous membrane, are transported from the positive towards the negative pole, and in this manner medicinal substances may be made to penetrate the skin and enter the tissues and the circulation; (3) it has been demonstrated with tolerable certainty that medicinal substances in the tissues in a state of solution may be removed by the action of the electric current. This knowledge justifies two distinct divisions of the subject,—(1) kataphoresis, or simply fluid transportation; and (2) kataphoric medication and demedication. It is difficult at present to say which will be the more useful in therapeutics.

The author then described a number of interesting experiments on animals which had been made by G. M. Stewart, of the physiological laboratory of Owens College, Manchester, England, and by Newman and Harries, of London. The gynæcologists have used currents of such density that the so-called hæmostatic or drying effect of the positive pole may well be due to the removal of fluids, and the liquefying effect of the negative pole to kataphoresis. The dense currents employed in the treatment of fibroid tumors produce contraction of the uterus and diminution of its vascular supply of the tumors, with a loss of its salts. The removal of the salts is the most important element in this treatment.

Regarding kataphoric medication, the author said he had often applied to the body an elec-

trode moistened with a solution of iodide of potassium, and subsequently detected the presence of iodine by an examination of the urine. He had also been able by the same action of the electric current to drive particles of graphite so deeply into the hair-follicles that they would remain there for weeks. The objection to this method of medication is that the dose cannot be determined with accuracy. Dr. Peterson's method, which is the best yet devised, measured accurately the dose applied, but not the actual amount introduced into the system by the flow of the current. In this connection it must not be forgotten that if we admit electrolysis as an element of kataphoresis, it is quite possible that medicines, when introduced in this way in their nascent state, may have special efficacy.

There are two systems of introduction,—(1) by the ordinary electrode and (2) by electric baths. The writer published in the *New York Medical Journal* for April 25, 1891, an account of a method of introducing lithium salts into rheumatic joints by a method which is termed "anæmic kataphoresis,"—a method of treatment which since then had continued to yield most satisfactory results. Owing to the present confused state of electro-physics, it has been his custom to apply the dissolved medicine to both electrodes. Also, with the aid of that special form of the static current, which the author had previously described under the name of "the static current," he had been able to produce a kataphoric anæsthesia, and to introduce into the body a great variety of medicinal substances. He also described an interesting experiment which he had made with the static machine to illustrate the transporting action of the current. If glycerin be placed on the positive pole, and the two poles brought about half an inch apart, on setting the machine in operation the glycerin will be seen to travel across from one pole to the other. This transference of the glycerin will not occur if the glycerin be placed on the negative pole.

The efficacy of electric baths has long been a much-mooted point. Owing to their very general adoption by quacks there has arisen a very decided prejudice against them. Nevertheless, the experiments of Mr. Edison, Mr. Kennelly, and other scientific observers of repute prove beyond a doubt that medicines can be introduced in this way through the unbroken tissues of the body. Austrian and German observers have introduced corrosive sublimate in this way, and have been able to find notable quantities of mercury in the urine for several days afterwards. Demedication is not ordinarily called for, since it is probable that the natural methods of elimination are usually all-sufficient, but it has proved useful in the treatment of ulcers from which electro-platers sometimes suffer.

In conclusion, the author said that while admitting the foregoing statements to be facts, we are not yet in a position to give a judicial expression as to the value of these methods of treatment.

"Its Use in General Surgery," by W. H. WALLING, of Philadelphia. (Read by title.)

"Its Use in Gynæcology," by DR. AUGUSTIN H. GOELET, of New York.

DR. GOELET said that he considered kataphoric medication had had only a very limited sphere of usefulness in gynæcology. He had experimented at one time with the positive pole in the vagina, moistened with solutions of morphine and cocaine, and had obtained fairly good results, but he had been led to abandon this line of investigation on account of the superior effects obtained with the faradic current in the way of relieving pain. A novel method of employing kataphoresis consists in moulding plaster of Paris around a platinum wire, and saturating the plaster with the drug which it is desired to introduce. At present he only employed kataphoresis for the purpose of producing anæsthesia of the vaginal surface previous to making punctures. This is readily done by moistening the electrode with a four- or eight-per-cent. solution of cocaine, and employing a current of ten or fifteen milliampères. It not only renders the puncture painless, but materially lessens the subsequent aching.

"Its Uses in Nervous Diseases," by DR. FREDERICK PETERSON, of New York.

DR. PETERSON said that after vainly endeavoring in various ways to control the pain of severe supra-orbital neuralgias, he had found that the application of a galvanic current, with the anode moistened with a ten- or twenty-per-cent. solution of cocaine, gave absolute relief for a period of from four to ten hours, and without producing any constitutional effects. As this kataphoric anæsthesia does not seem to mitigate neuralgias having their origin far back of the seat of pain, it is probable, as Dr. M. A. Starr has suggested, that this method also possesses some diagnostic value. He had experimented with a great many other substances, but had found cocaine most suitable for producing anæsthesia. Chloroform produced a dermatitis, and helleborin, although producing deep anæsthesia, also causes much smarting.

GENERAL DISCUSSION.

DR. MASSEY said that he had found kataphoric anæsthesia of service, chiefly in very superficial conditions, and therefore it had but a very limited field of usefulness in gynæcology. The objection to this method of treating enlarged glands in the neck with iodide of potassium is, that a strong current cannot be used, on account of the great irritation of the skin which it produces. Under this treatment he had found that tumors would be considerably swollen for some days after the application. He had, therefore, employed his favorite soap electrode with a current of sixty milliampères, and after persevering in this treatment about one month, he found the glands had diminished. He had also found the method of electric elimination very useful on one occasion, when, during the removal of hairs from the face by electricity, he accidentally connected the iron needle which he was using with the positive pole, this producing an iron stain. By reversing the current the stain was quickly removed by the metal being redeposited on the needle.

DR. W. F. HUTCHINSON said that, with the exception of a very few observers, notably Drs. Peterson and Morton, most of the members had accomplished very little with electro-kataphoresis, and he thought this was due chiefly to our confused knowledge of the physical laws governing its action.

DR. F. VON RAITZ, of New York, said that many good observers differed widely in their statements on this subject, some claiming only anodal diffusion, others only cathodal diffusion, while still others believed that it occurs at both poles. In the paper which he read before the Association a year ago he had called attention to the fact that certain substances have an affinity for one pole and certain others for the other pole, and hence the varying degrees of diffusion from the poles.

DR. R. J. NUNN said that he had made some experiments regarding mercurial demedication, and had failed to confirm Vergne's experiments and claims. In his experiments in kataphoresis, he, too, had employed the solution on both poles, because he thought it might produce a better diffusion in the tissues, and he believed he had seen benefit from it. He did not favor the use of an iron needle for the removal of hairs; a gold one was much more delicate, and would last for many years.

DR. E. L. H. MCGINNIS, of New York, said that his experience with kataphoresis was limited to a few cases, and in these he had obtained no marked results.

PROFESSOR HOUSTON, in closing the discussion, said that he could not agree with the President that osmosis can be neglected in the study of the physics of electro-osmosis. As it is a mutual but unequal mixing of the fluids, there must be a transportation of material from the negative to the positive pole, as well as from the positive towards the negative, and therefore he saw no good reason for placing the same material on both electrodes. The fact that the current, depending upon its direction, aids or retards the kataphoric current, shows how intimately electric phenomena are associated with ordinary osmosis.

THYMOL AS AN ANTHELMINTIC.

In a recent number of the London *Lancet*, DR. SONSINO, of Pisa, contributes an article upon this subject.

The history of the greater number of new drugs proposed as remedies is generally as follows: A certain substance is suggested as a remedy against a particular disease. After some hesitation we find that the new drug extolled by numerous observers in every quarter of the medical world is useful only against one particular disease. After a time its use is generalized, as it were, and extended to other ailments, and we now find its virtues lauded in many cases and many diseases. By and by a reaction sets in, drawbacks are discovered, it is no longer the general panacea, and it is only after a long time that the true therapeutic position of the drug is at last defined, if it does not eventually fall into complete disuse and oblivion. It seems that thymol is now passing through the common ordeal. It was first used by Bozzolo in 1880 against anchylostoma. After some hesitation its efficacy was confirmed by many practitioners, and it is now accepted as the best remedy in anchylostomiasis in such a manner that it has generally superseded the liquid extract of male fern, which was the only other remedy that for some time could compete with it; but the efficacy of thymol in anchylostomiasis was hardly established when already it was tried in other ailments, and especially as a general anthelmintic remedy. At the present time, if we could trust the assertions of some hasty advocates, it is the best remedy against all the intestinal worms, tænia among the number, and also against hæmatozoa, as filaria sanguinis hominis nocturna. Great credit is due to Dr. Crombie, of Calcutta, for having shown that about ten grammes per diem of thymol, given for three successive days, are not enough to cause the disappearance of the embryo filaria

from the blood, contrary to what has been asserted by others, who state that daily doses of some fraction of a gramme of this drug, taken for a certain number of days, are sufficient to cure radically filarial disease. Sonsino has seen more recently this inefficacy of thymol against filariæ sanguinis hominis confirmed by Dr. Manson. Perhaps Dr. Crombie has been too hasty in believing that thymol, while impotent in the case of the filariæ of the blood, is nevertheless effective against intestinal worms, tænia included. He therefore brings forward in the *Lancet* his experience on this subject. While he has had numerous brilliant successes with thymol in anchylostomiasis, so that in this disease he can testify that it acts often as a charm, he confesses that there are some cases—rare, it is true—in which difficulty was found in ridding the intestine of anchylostomes even with this remedy. He had recently in hospital a long-standing case of chronic disease, which was complicated with anchylostomiasis. After the administration of the drug the stools contained anchylostoma eggs in as great abundance as previously to the commencement of the thymol treatment, and as they are found in the stools of patients from whom thymol expels some hundreds of anchylostomes, he could not explain in a reliable manner the cause of this non-success. He argued that it might be due to the circumstance of there being a certain number of worms hidden in the walls of the intestines and others under the folds of the valvulæ conniventes, in such a manner that the thymol may have passed without exercising its toxic action upon the parasites, or it might have been that an extraordinary abundance of tenacious mucus enveloped the worms, and so preserved them from the action of the remedy. Unfortunately, the patient, who one year before had been operated on for an abscess of the liver, and who had fallen into a state of marasmus from diarrhœa and vomiting, became worse, and, seeing his end approaching, preferred, in September last, to leave the hospital and go home to die. Consequently no post-mortem could be obtained whereby the number of anchylostomes could have been counted and the reason for their non-expulsion explained. Such rare cases as this of non-success must not detract from the merits of thymol as a remedy against anchylostomiasis. The author insists, however, that its efficiency in anchylostomiasis cannot in any way authorize us to proclaim it a universal anthelmintic, applicable to all intestinal worms, without positive proofs of its efficiency in the case of each individual species of parasite. He asserts that the only worms he has occasionally seen expelled along with the anchylostoma, after the administration of thymol, were ascaris lumbricoides, oxyuris vermicularis, and trichocephalus dispar. But while the expulsion of anchylostoma is the rule with thymol, this drug acts on the other worms mentioned only exceptionally, in the majority of instances failing entirely to cause their expulsion. Consequently in ascaris lumbricoides he does not trust to thymol so much as to other ordinary remedies, such as santonin, for which he now prefers, on account of its insolubility, to substitute its product santoninossima, introduced by Coppola. As for oxyuris vermicularis, which, on account of the liability in the case of this parasite to self-infection, is of all the intestinal worms perhaps one of the most difficult to completely eradicate, he has found that with thymol it can be gotten rid of more completely than with other means at our disposal, especially when it is applied by enema. Respecting trichocephali, the difficulty in procuring their expulsion with any remedy is well known. After his first trials, in which he found in some cases trichocephali in the stools following the administration of thymol, he entertained the hope that this drug might prove an efficacious remedy against this worm. As the ordinary seat of the worm is the cæcum, he suggested that its expulsion might be better assured by using thymol in enema. But if used in this way, as the thymol must be given in solution, he fears that it could not be administered in doses sufficiently large to prove efficacious without proving hurtful to the organism of the host from absorption. Indeed, thymol introduced into the circulation is certainly a poison, even in small doses. If we risk giving it in such large doses as 4, 6, 8, and even 10 grammes per diem, it is only because we administer it in powder, and can trust that, if absorbed at all, it will only be so in a very minute amount. The evidence of absorption having taken place is afforded by the patient being attacked with vertigo, and by his urine becoming brownish. These unpleasant symptoms are only met with in rare cases after the administration of such a dose as 4 grammes of thymol. From what he has said it will be seen that thymol will not prove so sure a remedy against the three næmatodes named as it is against anchylostoma. As for tænia, he has never tried thymol against tænia solium or tænia mediocanellata, because he thinks that pelleterine, properly administered, is now the best remedy against the large tape-worms. He states, however, that in cases of anchylostomiasis complicated with tænia nana he obtained

with thymol the expulsion of the former, but not of the latter. The tæniæ were expelled only after recourse was had to the liquid extract of male fern and calomel. In a case of tæniæ nana in a child two years of age, he succeeded on one occasion in bringing away more than one thousand specimens of this small cestode with only 1½ grammes of liquid extract of male fern combined with 15 centigrammes of calomel.

He has never read of any well-ascertained instances of expulsion of the large tape-worms by thymol, and should be grateful to Dr. Crombie or to any other practitioner for publishing such cases, with full particulars, if they are acquainted with them. Indeed, it seems that the results of Bozzolo's and Lutz's experience, though contributing perhaps to the wider adoption of thymol as a general anthelmintic, especially against tæniæ, are not so conclusive as to replace pelleterine by thymol. Bozzolo, in the work cited, speaks only of a case in which, after the use of thymol, he did not succeed in seeing the scolex with the strobila. He adds that the patient (a woman) after eight months had not passed any proglottides, and that she felt well. Lutz, in his last work, says he has never seen the complete expulsion of a cestode by thymol; nay, in two cases of bothriocephalus he has ascertained that after some time the patients still suffered from the presence of the worm. Only in some cases of tænia had he noticed that after incomplete expulsion the worm no longer appeared. After all, Lutz only declares that thymol had proved for some patients the more agreeable remedy, but at the same time he put it in the second line, and after pelleterine and koussine. Giles, who more recently has had the opportunity of trying thymol on a large scale against the anchylostoma in Assam, says that he had no occasion to try it against tænia; but that from what he gathers from others, thymol would appear to be a far more efficient vermifuge in dealing with tæniæ than male fern or any of the other drugs more commonly used for that purpose. But among the latter he does not mention pelleterine. Having nowadays at our disposal pelleterine, he thinks it useless to have recourse to thymol, which certainly offers more drawbacks than pelleterine. Dr. Walker, in Sandakan Hospital (British North Borneo), and Giles, in Assam, each obtained once the expulsion of a specimen of distomum crassum by thymol used against anchylostoma. Certainly these two observations (up to the present there are no facts telling against them) are in favor of the efficiency of thymol against the large Asiatic fluke. But we cannot forget that in a case cited by Cobbold the expulsion of several specimens of this fluke followed the employment of a milk diet simply, and in others the same result has followed a milk diet unaided by any other treatment.

To conclude, the writer believes it would be a therapeutic mistake to infer that a substance which is truly efficient against some given parasite must also prove successful as a general anthelmintic. Experience teaches us the contrary in the case of every drug having an action on some particular worm. As for thymol, he asserts as the result of his experience that it is an effective agent generally against the other three intestinal anchylostoma, but very uncertain against the other three intestinal næmatodes he has referred to, and entirely ineffective against tænia nana. As for the method of administration of thymol, he thinks that the best plan is to give it in powder in wafers or cachets. He finds that tabloids are not of any advantage, because so many have to be taken at a time if we wish to introduce the drug in doses of several grammes, and the thymol being acrid, the direct contact with the mouth might prove hurtful.

THE INFLUENCE OF ERGOT ON THE INVOLUTION OF THE UTERUS DURING THE LYING-IN PERIOD.

In the *Lancet* for November 19, 1892, MR. HERMAN contributes the following article:

In the "Transactions of the Obstetrical Society of London," vol. xxx., for 1888, will be found a paper by Dr. C. Owen Fowler and Mr. Herman, in which observations are detailed pointing to this general conclusion: "That the administration of an ergot mixture during the first fortnight of the lying-in period appreciably increases the rapidity with which the diminution in size of the uterus goes on." This conclusion was reached by comparing the average rate of involution (*a*) in a number of cases, taken without selection, in which ergot was given, with (*b*) the average rate of involution in an equivalent number of cases, also taken without selection, in which ergot was not given. In the *Annales de Gynécologie*, vol. xxix., for 1888, p. 175, is published an investigation by Dr. Emile Blanc, of Lyons, conducted in a very similar way, but which led him to the conclusion that "ergotine administered during the first five or ten days of the lying-in period exerts no favorable influence on uterine involution." Dr. Blanc's re-

search was quoted at the time in several English journals. These two investigations seem to contradict one another. Mr. Herman desires to point out that they do not; but that, on the contrary, they confirm one another, and show the real value of ergot in the lying-in period. The reason that Dr. Blanc's conclusion differs from that of Dr. Fowler and Mr. Herman is this, that he chose the cases in which to test the effect of ergot. He took only cases of "normal delivery at full term, excluding premature labors, cases with febrile disturbance, and all cases needing any intervention" (p. 177). These cases excluded are just those in which the causes known to hinder involution are present. Dr. Fowler and Mr. Herman took cases without any selection, and therefore among theirs were included cases in which the causes of subinvolution were present. Dr. Blanc's research shows that in a normal lying-in the uterus completes its involution as well without ergot as with it. The paper by Dr. Fowler and Mr. Herman shows the beneficial effect of ergot in counteracting the causes which retard involution. Dr. Blanc's paper contains nothing in opposition to this view; on the contrary, he expressly says, "Against secondary hemorrhage the drug maintains its position. Its action is the more efficacious the nearer the delivery." The practical conclusion is, that while in a perfectly normal lying-in ergot is not required, yet when any cause of imperfect involution is present, or suspected to be present, ergot, given throughout the lying-in period, will counteract its influence, will promote involution, and should be given.

A WARNING CONCERNING THE CHLORIDE OF ETHYL.

In the London *Lancet* for November 5, 1892, Dr. H. Radcliffe Crocker calls attention to the fact that the vapor of chloride of ethyl when inhaled is not altogether free from injury.

Having occasion to scarify a small patch of lupus erythematosus on the nose of a young lady, the writer thought it a favorable opportunity to try a chloride-of-ethyl tube. The spot was frozen well enough, but the patient turned pale, slightly livid, and stopped breathing, looking very like a person under oxide gas. As the ethyl was at once taken away, she recovered in a few seconds, but Dr. Crocker states he will certainly not use it again to any part of the face where it is possible that the vapor can be inhaled. Chloride of ethyl applied by means of a tampon is far safer and easier, but care must be taken not to overfreeze the skin or a dermatitis may be set up.

THE TREATMENT OF MYXŒDEMA BY THE INGESTION OF FRESH THYROID GLANDS.

In the *British Medical Journal* for October 29, 1892, Mackenzie reports a case of myxœdema treated by feeding the patient with fresh thyroid glands. We have already in previous issues of the Therapeutic Gazette published accounts of Dr. Murray's experiments in regard to the influence of the juice of these glands in cases of myxœdema. In the same number of the *British Medical Journal*, Dr. Fox, of Plymouth, reports a case.

The accounts published recently in the *British Medical Journal* by Dr. Murray and others regarding the treatment of myxœdema by means of subcutaneous injections of an extract of the thyroid glands testify so unmistakably to the beneficial effect resulting therefrom that the method will probably receive a more extensive trial. This mode of treatment is not, however, free from objection. First, it requires the most scrupulous care in the preparation of the extract, the demand for which is never likely to be so great as to enable it to be supplied, when manufactured under the ideal conditions, at less than an almost prohibitive price, and few medical men have the time to devote to its preparation themselves. Secondly, the application of the remedy sometimes produces alarming immediate symptoms, such as loss of consciousness and tonic spasm; and remoter effects, such as indurated swellings and abscesses at the seat of injection, have followed the use of even the most carefully-prepared extract. When it is remembered that these injections have to be personally administered for the remainder of the patient's life by the medical attendant, these risks, however slight in regard to a single application they may appear, become immensely magnified when a long series have to be taken into account.

These objections are of great moment as regards the future use of this plan of treatment, although not in the least detracting from the value and interest of the results which have so far been obtained.

The method of treatment Mackenzie has employed is altogether so very much simpler and safer, and so very easily carried out, and the result in the case in which he tried it has been so striking and encouraging, as well as interest-

ing, that he publishes a short account of it, in order that others may have an opportunity of putting it to the test. The method consists essentially in administering by the mouth either the fresh thyroid glands themselves or a freshly-prepared extract. It is obvious that this mode of treatment can be perfectly easily carried out. No elaborate antiseptic precautions have to be taken. There is no more difficulty in getting thyroids, once it is explained what is wanted, than there is in getting kidneys. All the dangers attending hypodermic injections are avoided.

When the writer started with the treatment he was sceptical as to whether any effect at all would result, and therefore commenced by giving his patient two whole sheep's thyroids at a time. This amount, however, is more than necessary or advisable, as it is apt to nauseate.

Also on two occasions he gave her by the mouth some extract which he had prepared by Mr. White, of St. Thomas's Hospital. The effect on the temperature and pulse, as well as on the general condition of the patient, has been very striking. Under what he considers an overdose of thyroid the pulse-rate increased to 116, and the temperature on one occasion rose to 100° F., but the maintenance of a normal temperature by proper amounts can easily be effected, he believes.

Probably half a thyroid gland occasionally will prove to be sufficient. The return of perspiration and a feeling of warmth, and the disappearance of all swelling from the hands and feet and its great diminution in the face are unmistakable. He has now had the patient under his care for two and a half years, and has seen her very frequently during that time. She would not now be recognized as the same person.

To sum up the effects observed in this case: 1. A marked acceleration of the pulse and rise of temperature proportional to the quantity of thyroid given, these persisting for some time after the administration is discontinued. 2. A general diminution of the swelling and amelioration of all the symptoms accompanying myxœdema.

In the administration it has been found that it is less nauseating when given with a little brandy. In another case, as he has already mentioned, he should be inclined to commence the treatment with either one thyroid every other day or half a thyroid every day. If it is found that this is well tolerated and does not produce any marked effect, the dose can be easily increased. The method is one which experience will no doubt much improve on; but it will be a great advance if further observation confirms what has been observed in this case,—that a remedy easily obtained, taken by the mouth, should produce marked improvement in a disease hitherto intractable except by hypodermic and somewhat risky injections.

Dr. Fox's case is as follows:

E. M., aged forty-nine, came under the author's care at the Plymouth Dispensary in March last. She at that time exhibited all the typical symptoms of a well-marked case of myxœdema. Fox showed her at a meeting of the Plymouth Medical Society, and consent was unanimous in favor of myxœdema.

The disadvantages of having to treat cases of myxœdema by continued hypodermic injections are many and obvious. He therefore determined to try the effect of thyroid extract when taken by the mouth. He directed the patient how to prepare a glycerin extract of half a sheep's thyroid, on much the same lines as laid down by Dr. Murray. Of the extract thus prepared she was to take half one hour before breakfast and the remainder one hour before supper, and to continue doing so twice a week.

She commenced the treatment on June 2. On July 11 she showed very visible signs of improvement; her facial expression was decidedly brighter, her speech was better, and she felt generally much stronger.

On September 12 the improvement had continued. The skin was soft and perspired freely; the œdema was much less. She was ordered to take half a thyroid, lightly fried and minced, to be taken with currant jelly once a week, and to continue taking the extract once a week. By mistake she took the minced gland twice a week for a fortnight; she then noticed that she was getting rapidly weaker, profuse perspiration breaking out on the least exertion; she was unable to walk or stand steadily. She left off taking the gland on September 22, and began rapidly to recover her strength.

On October 17 she considered herself well, and better than she was two years ago when the symptoms of myxœdema first began. Her condition now is in every way satisfactory. Her face has assumed its ordinary proportions, her speech is normal, the œdema has gone, and menstruation has returned.

Dr. Fox states that he has reported this case, as the method of administering the remedy is simple in the extreme, and in his case, at all events, the result has been satisfactory. If he

had another case to treat, he states, he would begin with small doses of the minced gland, as that seems to be more potent, gives less trouble in preparation, and is preferred by the patient.

AN ANTIPYRIN EXANTHEM, WITH ULCERATION.

PROFESSOR J. MOELLER reports, in the *Therapeutische Monatshefte*, November, 1892, that in November, 1891, he took 15 grains of antipyrin for headache. On the following morning he was surprised to find the joints of his fingers swollen and, together with the backs of the hands, occupied by erythema. The lips, the orifices of the nose, the auditory canal, and the conjunctivæ were also reddened, swollen, and somewhat painful. Moreover, there was a sharply-circumscribed erythema on the skin of the scrotum and glans penis, and on the corona of the latter an ulcer developed, which healed without scarring in fourteen days, under the care of a colleague. Moeller thought the ulceration was due to the fact that the part had not been protected by a dressing. The rest of the exanthem disappeared in three or four days.

It is remarkable that before this time he had been able to take antipyrin without any bad after-effects. To test the causal influence of the antipyrin, he again took 15 grains for migraine on December 26. In ten minutes he felt a burning pain upon the lips and glans penis, and an erythema speedily developed, with much itching and pain. On the following morning ecchymoses had formed upon the dorsum of the first phalanx of the thumb, and on the skin of the scrotum and folds about the anus were several excoriated spots; on the corona of the glans penis was a blister in folds similar to that of a burn. In spite of a protective dressing an ulcer formed, and was slow in healing, as in the first instance.

DISTURBANCES OF THE SKIN DUE TO DEFICIENCY OF FAT.

PROFESSOR O. ROSENBACH (*Therapeutische Monatshefte*, November, 1892) includes under this head the dermatitis which occurs upon the hands of surgeons from the use of antiseptic lotions. Chlorotic persons, he says, have such disturbances simply from the use of cold water and alkaline or neutral soap; the elbows and knees are favorite seats for thickening and fissuring of the skin. He includes also the profuse sweating in fat persons, and furuncles.

As regards treatment, sebaceous matter being deficient, fat must be supplied by the use of lanolin, unsalted fresh butter, cold cream, or lard; there are cases also where vaseline is useful. The important thing is to supply to the superficial layers of the skin a readily-absorbed fat. In furuncles of the neck, the whole neck up to the edge of the hair should be rubbed with fat of some kind several times a day, especially on hot days, the sweat being first carefully wiped away. The excess of fat should at once be wiped away with a soft cloth. In dermatitis of the hands, the hands should be rubbed with fat or lanolin after every washing and at bedtime. Glycerin is not suitable when the skin is very dry. It may be used upon the hands after washing and when the hands are still moist.

Furuncles of the nose should be treated with applications of cold cream or lanolin upon pledgets of cotton. Vaseline is not suitable, as many persons find it irritating. The application needs to be repeated more frequently if the patient remains in hot rooms.

The dermatitis of the elbows and knees referred to can be cured in from one to two weeks by inunctions of unmedicated fat. The inunctions should be performed two or three times a day. Superfatted soaps are not suitable in any of the cases mentioned.

THE TREATMENT OF DYSPEPSIA.

In the treatment of this disease HAYEM (*Revue de Thérapeutique Générale et Thermale*, December 22, 1892) recommends the following:

1. Remove at once all sources of irritation; prescribe a more or less relative rest of the stomach, and advise a diet of easy and prompt digestion.

2. Employ moderate revulsives in order to modify through a reflex mechanism the irritation of the stomach.

3. As medicinal agents use those that exercise a sedative action on the stomachic processes, especially those tending to diminish the production of chlorated elements; to modify fermentation, and to calm hyperæsthesia or nervous erythism, washings of the stomach and mineral waters are of service.

4. Employ hygienic measures and medicinal agents, with a view to exercise a tonic and sedative action on the liver.

5. Finally, when in chronic cases there is a condition of gastric atony, or when the irritation is the consequence of static disturbance,

mechanical means should be resorted to, such as electricity and massage.

In regard to washings of the stomach, Hayem recommends strong alkaline solutions of a strength of 20 to 30 in 1000, at a temperature of from 35° to 38° C., or with a solution of nitrate of silver of the strength of 1 in 1000. In this connection permanganate of potassium, of the strength of from 50 centigrammes to 2 grammes in 1000, has rendered good service.

Of medicaments, the author uses the most efficacious and least dangerous drugs, such as bicarbonate of sodium and calcined magnesia, the phosphate and the sulphate of sodium. The diet should be carefully guarded. In well-marked cases milk, in from 60 to 200 grammes, three or four times during the twenty-four hours (being careful that the intervals are always the same), is ordered, at the temperature best suited to the taste of the individual patient. If this article is well borne, the amount may be increased.

Thirst can be allayed by small, warm washings.

For vomiting, a mixture containing from 2 to 5 centigrammes of the extract of belladonna is recommended. Lukewarm baths, simple or alkaline, of short duration, are advantageous for calming nervous erythism and in causing sleep, and also in diminishing acidity.

The application of a wet compress over the epigastric region is advised as a good measure. The evacuation of the stomach is indispensable. The author, therefore, recommends washings of the organ night and morning, giving preference to a solution of salicylic acid of the strength of 1 in 1000. For the administration of progressive diet, the author is in accord with the method of Leube, which is as follows:

1. Bouillon; milk; eggs, raw or soft-boiled; biscuits, without sugar; pure water, and mineral and gaseous water.

2. Brains; boiled rice; boiled pigeon; boiled calf's feet; fish: chicken (avoid the skin); soups, mixed with tapioca and scrambled or beaten eggs.

3. Half or entirely raw meat; roast beef; lean ham; a few white potatoes; a little bread, not too fresh; small quantities of tea and coffee with milk.

4. Roast chicken and pigeon; venison; partridges; cold roast beef; veal; macaroni; rice-pudding.

Later the author allows a little Bordeaux or Rhine wine one or two hours before meals. The patients should avoid all excesses, and should be particularly careful in the diet prescribed.

HYPERCHLORHYDRIC DYSPEPSIA.

Writing upon the subject of hyperchlorhydric dyspepsia, G. BARDET (*Les Nouveaux Remèdes*, November 24, 1892) believes that the chief symptoms observed in such cases may be said to depend upon the following conditions: 1, inactivity of the skin; 2, a tendency to an increase of the chlorhydric function; 3, a tendency to a vitiated fermentation, flatulency, constipation, and a tendency to hemorrhoids; 4, production and reabsorption of toxines; 5, considerable production of gases in the stomach.

In regard to treatment, the first two conditions must be dealt with on general principles, and according especially with the methods advocated by Dujardin-Beaumetz. In the first instance rest should be enforced after each meal, and in the second instance a well-regulated diet is advised, with total suppression of meat. To avoid vitiated fermentations, antisepsis of the alimentary tract is of the greatest importance. In such cases drugs like naphthol, benzoated naphthol, asaprol, salol, and the salicylate of bismuth are recommended, and particularly the benzo-naphthol and the bismuth salt, in doses of 10 grammes a day of the former medicament and from 2 to 3 grammes of the latter drug after each meal. Eucalyptol and hydrate of magnesium, especially the second drug, should also be tried. In the treatment of constipation, the employment of quassine (in doses of 2 centigrammes of the amorphous preparation, or 2 milligrammes of the crystalline powder) is advised. Flatulence can be overcome by a well-regulated diet.

Three things, finally, must be borne constantly in mind regarding the treatment of such cases: First, the occurrence of fermentation due to the presence of gas in the stomach; second, the necessity and utility of a mixed vegetable diet; third, the increase in dosage of the remedies employed in order to bring about intestinal antisepsis.

THE ICE-BAG AS A THERAPEUTIC AGENT.

Those who remember reading the article of Dr. Kinnear in a recent number of the THERAPEUTIC GAZETTE will be interested to learn of the views held by DR. LEES, of Cambridge, England, as to the value of cold as a local application.

In an article in the *Clinical Journal*, a weekly which has just issued its first number, he points out the value of the ice-bag in a number of affections.

The value of the ice-bag in therapeutics is still very inadequately recognized. Tradition sanctions its employment for the arrest of hemorrhage in hæmoptysis and in typhoid fever, though its utility in these conditions is open to question. But in visceral inflammation, with the single exception of meningitis, it has been avoided and even imagined to be dangerous. Moist warmth has been relied upon to relieve pain and to dilate the superficial blood-vessels, so that the application of poultices has long been the routine treatment of visceral inflammations, and a diagnosis of pneumonia, pericarditis, pleurlsy, or peritonitis appears to the majority of practitioners an irresistible call for poultices. But the reign of poultices has nearly ended. In surgery it has been almost banished by the antiseptic, and still more by the aseptic, measures which have, during the last fifteen years, completely transformed surgical treatment. In medicine it still exists in some quarters as a survival,—not of the fittest, for in medical cases in which moist warmth is desirable hot, moist flannels, with or without the addition of turpentine, are usually to be preferred. But it will soon be generally recognized that many visceral inflammations ought to be treated, not with warmth, but with the local application of cold, precautions being, of course, taken to prevent any undue chilling of the body generally.

Dr. Lees's first experience in the use of the ice-bag in pneumonia was in January, 1885, and the remarkably beneficial results which followed, when it replaced the poultices employed during the first two days of treatment, impressed him greatly. And in this first case he noted a fact which has often been observed subsequently, and which is of the greatest importance in an estimate of the value of this treatment,—the fact that where the ice-bag had been applied there was produced a rapid improvement in the physical signs, although, at the same time, the disease was still present, and sometimes even extending, in other parts of the lungs.

In the *Lancet* for November 2, 1889, Dr. Lees published an account of eighteen cases of lobar pneumonia and broncho-pneumonia treated with the ice-bag, all of which recovered. In that paper he drew attention to the fact that the improvement caused by the ice-bag was not simply a reduction of temperature (though that often occurred to the extent of three or four degrees), but was also a remarkable diminution of the physical signs over the diseased area and an amelioration of symptoms.

Since publishing his cases he has continued the use of the ice-bag in the treatment of pneumonia, and is satisfied that, in addition to its beneficial action in the reduction of temperature, it does tend to check the local inflammation of the lung. And no difficulty need be felt in accepting this statement on the ground that pneumonia is a specific disease due to the presence of micro-organisms, for Dr. Burdon Sanderson stated in his Croonian Lectures (*British Medical Journal*, November 28, 1891, p. 1137) that "the pneumococcus is one of the most remarkable microphytes known; first, because, under certain conditions, it is so extremely virulent; but, secondly, because it exemplifies the general principle that virulence is one of the most variable attributes of a microphyte,—one which is most affected by its environment." Hence it is readily conceivable that an alteration in the environment, produced by the persistent application of cold, may be a powerful factor in checking the growth of the specific organism. He does not, of course, claim that it will save every case of pneumonia (many of those due to influenza or alcoholism, or of septic origin, are hopeless under any kind of treatment), but he believes that it is capable of saving some lives which would be lost if fomentations or poultices were employed, that it reduces the severity of symptoms, relieves pain, gives comfort to the patient, and brings about an earlier and a more rapid convalescence. The relief of pain is often very striking, and not infrequently, after the removal of the ice-bag, patients ask for its reapplication on account of the comfort they experience from its presence. A few months ago he saw, in consultation, a lady of sixty-two, suffering from pneumonia, whose condition was critical, and growing worse. With some reluctance, on account of her age, he suggested that the poultices should be replaced by an ice-bag, and arranged to see her again three hours later to watch the effect. The change was carried out, and to his inquiry how she liked the ice, she replied with emphasis, "It's delicious!" When he removed the ice, in order to examine her chest, she exclaimed, "I must have my bag again!" Her improvement commenced with the application of the ice, and she was soon convalescent.

In acute pleurisy, apart from pneumonia, the ice-bag is often very helpful: it quickly relieves pain, and has often seemed to cut short the disease. Its action may be aided by tightly strapping the affected side, so as to restrain the movements of respiration, the bag or bags containing ice being then applied over the strapping. If the symptoms are very acute, it is

useful to commence the treatment by the application of a few leeches. When a serous effusion had occurred into the pleural cavity before the case comes under treatment, he has seen the use of an ice-bag apparently of great service in hastening absorption.

Pericarditis is as amenable as pleurisy to the local influence of ice, and the author has reported eight cases rapidly relieved by this method. Pain is soon relieved, the extent and loudness of the friction rub quickly diminish, and effusion is checked. More than once the writer has seen pericarditis treated by the ice-bag subside without any enlargement of the area of cardiac dulness. The pulse becomes stronger and less frequent, the dyspnœa lessens, and it is clear that the local influence of ice on the heart in pericarditis is not depressant, but decidedly tonic. In conversation recently with Dr. Leech, Professor of Therapeutics in the Victoria University, the author was interested to find that he also had observed, and was much impressed by, this tonic influence of the ice-bag in pericarditis.

Dr. Lees has seen a recent pericardial effusion rapidly absorbed beneath an ice-bag; in this case the diminution of the increased præcordial dulness was distinctly made out within a few hours after the application of the ice, and it steadily continued. In pericarditis it is impossible to explain the improvement caused by the ice as being due to mere reduction of temperature, for in pericarditis this is often not much raised, and it is sometimes very little depressed by the ice-bag, which produces so much improvement in the physical signs. And if it be true that the local application of ice does diminish the violence of a pericarditis, it is a fact of the greatest possible importance in practice. Pneumonia, on recovery, leaves the lung little the worse, but pericarditis is apt to involve and damage the muscular structure of the heart, causing permanent dilatation of the cardiac cavities, especially of the right ventricle, and a case of "cured pericarditis" is, in very many instances, a case of crippled heart. Hence it is of the first importance to arrest a pericarditis as soon as possible, and from this point of view he believes ice will be found a very great gain. Experience is as yet too limited to warrant any definite statement about the after-history of these cases, but from Dr. Lees's records he feels confident that it will be found in the future that the use of ice in the treatment of a case of pericarditis will often have the result of preventing the loss of many years of the patient's life.

With regard to peritonitis he has little to say, but points out that the local application of an ice-bag is often of great benefit in the less acute inflammations of the vermiform appendix ("perityphlitis"). In the more severe cases of this kind, where decided symptoms of peritonitis are present, no time should be lost in any palliative treatment, for such cases are generally the result of the perforation of the appendix by a concretion, with an acute local abscess, and, if not operated on, are rapidly fatal. He has had five cases of this kind under his care during the last three years. The first was not operated on, and died in three days from the earliest symptoms; the other four were submitted to operation within a few hours after admission to hospital. All of them were found to have the condition above described; all four recovered rapidly and completely (see *Clinical Transactions*, 1892, p. 135).

But where the inflammation of the appendix is less acute, the local application of ice often produces very rapid relief of pain and diminution of the swelling. Any one who watches the effect of the ice-bag on this purely local inflammation will be prepared to accept its local influence in pericarditis and in pneumonia.

In catarrhal laryngitis the ice-bag quickly reduces the congestion, and thus diminishes the urgent symptoms; even in diphtheritic laryngitis it sometimes has given distinct relief.

It is not necessary to advocate the ice-bag in meningitis, but Dr. Lees reports a case of posterior basic meningitis in a young girl recently under his care at the Hospital for Sick Children, in which ice, applied to the occiput and nape of the neck, had more influence in checking obstinate vomiting than all the drugs and other means which were used.

In infantile paralysis, if seen within forty-eight hours after the onset, an ice-bag applied over the affected region of the spine may be expected to render good service. It is not often that these cases are brought to a hospital sufficiently early to give this treatment a chance, but in one case at least it apparently proved successful, the resulting paralysis being very limited.

Dr. Lees passes over the employment of ice in the treatment of orchitis and some cases of hernia, for of these he has no experience, and then points out the benefit which he obtained in recent cases of sciatica. It is now well understood that sciatica is usually not a neuralgia, but a neuritis,—that it is due to a local affection of the nerve-trunk. Hence it is not unreasonable to expect that an ice-bag applied

over the inflamed part may do good. On two or three occasions he has seen very rapid improvement produced in this way.

Where the sciatica has lasted for several weeks, one can hardly expect much benefit from the ice-bag; yet it has given marked relief (not cure) in a case of three months' standing, the patient having been in bed for a fortnight, and having had morphine injections three times, acupuncture three times, and eighteen flying blisters, all without benefit. The application of ice quickly "deadened" the pain and enabled him to sleep. The improvement continued, and further benefit was obtained by massage.

In inflammatory conditions of the eye the value of iced applications is now generally recognized. Mr. Silcock states that they give the greatest relief in some cases of purulent conjunctivitis and of traumatic iritis, and that they are frequently employed as a means of preventing the occurrence of iritis after operations for cataract.

In country districts it may be impossible to procure a supply of ice in summer; in towns it may always be obtained from a fishmonger. The block of ice needs to be broken up into small masses; this can easily be effected by means of a hammer and a pin. If an ice-bag is not at hand, it is usually possible to obtain a water-proof sponge-bag. Two or three new sponge-bags should be procured, and the larger the better; as a rule, two such bags are needed at once. When the bag has been loosely filled with small masses of ice, its mouth must be firmly tied, in order to prevent any escape of water. It is sometimes almost impossible to hinder this altogether, but a soft absorbent towel may be placed all round the bag. This difficulty led Dr. Lees to give a trial to Leiter's coiled tube, but he found it irksome to the patient and not so efficient.

Another difficulty is that of keeping the ice-bag in its proper position, especially when the patient turns in bed. Any such movement is apt to displace the bag from its contact with the wall of the thorax, and sometimes to invert it, and thus favor the escape of water and wetting of the bedclothes. Often it is possible to prevent these undesirable results by fixing the bag in its proper position by a few turns of a light bandage, but if there is much dyspnœa this may not be possible, and we must then rely on the carefulness and skill of the nurse, who will alter the position of the ice-bag when the patient moves in bed. This difficulty is less serious than might be imagined, because the soothing effect of the cold applications is to diminish restlessness and enables the patient to lie more quietly.

If there is great local tenderness which resents even the light pressure of the ice-bag, suspension should be tried, but in this case the nurse must take especial care to see that the suspended bag is kept actually in contact with the surface.

There is not usually any difficulty in persuading patients to allow the application of an ice-bag, and after trying it for a time they are generally well pleased with it. Twice Dr. Lees has known it to be thrown off after a few minutes in the delirium of pneumonia, and occasionally the patient has objected to the constraint of the position which it had involved, and which might have probably been avoided if he had been the sole charge of the nurse; but, as a rule, the ice-bag gives comfort, and often it affords great relief. Dr. Lees reports but one patient who, though doing well, objected to the treatment throughout.

There may sometimes be greater difficulty in private practice in persuading the friends of the patient to sanction the use of treatment so opposed to traditional notions; but, as a matter of fact, he has in consulting practice found this to be no real difficulty. Still, there is no doubt that the general practitioner must act warily in such a matter, and must remember that if recovery does not follow, he may be unjustly blamed.

Any real harm from the use of ice-bags may always be avoided by efficient nursing. In the case of an infant or young child the temperature should be taken hourly, and the ice-bag removed when the temperature falls to 100° F., and applied when it again rises to 102° F. At the same time the child's legs and feet should be wrapped in hot, moist flannels, and it may even be desirable to apply warm fomentations to the abdomen.

In adults also similar applications, or a hot-water bottle to the feet, are often of service, and dilatation of the cutaneous blood-vessels may be brought about by the use of such remedies as jaborandi, alcohol, and nitro-glycerin.

Special care must, of course, be exercised in the use of ice for aged or debilitated patients; but the case above narrated of a lady of sixty-two, who found the ice-bag "delicious," shows that even at this period of life benefit may be derived from its employment. And even in such depressed conditions as influenza or alcoholism, it is possible to use this form of treatment with advantage, and Dr. Sansom, of the London Hospital, lately stated that apparently quite hopeless cases of alcoholic pneumonia

under his care had recovered after treatment with ice.

In such conditions the subcutaneous injection of strychnine will be found of considerable assistance, commencing with 2 minims of the official solution three times daily, and pushing up the dose to 6 or 8 minims, if no twitching of muscles is observed.

The length of time during which the use of the ice-bag should be continued in any particular case must be decided by the progress of the disease and the general condition of the patient.

Sometimes it is desirable to use it for a few hours, and then remove it for an interval longer or shorter, as the symptoms may suggest. Thus, it may be applied for four hours, then removed for a like period, and then again applied, and so on; or it may be used for longer periods during the day, and removed at night. Each case demands sound judgment on the part of the physician. Sometimes it may be continuously applied for a considerable period, such as two or three days, or even longer, without intermission.

Thus, in one of the cases of pericarditis above referred to, the subject of which was a girl of seven years of age, the ice-bag was kept in position over the heart during the greater part of 12 days; in fact, during 186 out of the 288 hours, commencing with a continuous application of 62 hours. The child liked the ice-bag, and the final result was most satisfactory.

The employment of this remedy no doubt calls for care and watchfulness both on the part of the physician and nurse, but with reasonable caution it involves no risk, and it is capable of rendering the most effectual service.

OINTMENT FOR URTICARIA IN CHILDREN.

L'Union Médicale for November 8, 1892, gives the following prescription:

℞ Chloral, gr. x;
Powdered camphor,
Powdered gum-arabic, of each, ʒi;
Simple cerate, ℥i.

Triturate together the first three substances until liquefaction takes place, and add the cerate. At night the ointment is to be applied to the area which is involved. It will diminish the itching and produce quiet sleep.

COLD APPLICATIONS IN THE TREATMENT OF CONTINUED FEVER.

In the London *Practitioner* for November, 1892, DR. FENWICK contributes an article with this title, in which he gives a thorough account of his application of cold treatment of continued fevers. The conclusions which he reaches are summed up as follows:

The mere reduction of the fever in cases of enteric fever or acute pneumonia does not constitute the entire treatment of the disease; it is, in fact, only the treatment of a single symptom.

But in the absence of specific remedies our efforts have to be directed to the perfection of such measures as may help to maintain life until nature steps in and effects the cure; and one of the most prominent indications in this connection is to save excessive wear and tear of the vital tissues by diminishing the injurious influences of pyrexia.

For this purpose the cold bath is undoubtedly the quickest and most reliable means at our command, and in urgent cases (hyperpyrexia) it is the only measure which proves of any service. But it has been already pointed out that so many inconveniences attend the administration of the bath that in numerous cases this method of treatment cannot be employed. He therefore describes the beneficial effects derived from the use of the ice-cradle combined with hot sponging, the main features of which may be summed up as follows:

1. In cases of moderate pyrexia (105° F.) the temperature of the body can usually be reduced about 1½° to 3° F., and maintained at a reduced point. Where the temperature exceeds 105° F., recourse must be had either to the cold bath or to the ice-pack.

2. The measures themselves are exceedingly simple in their execution and entirely free from danger.

3. In order to obtain the utmost antipyretic effect, strict attention must be paid to the various details connected with the use of the ice-cradle, especially with regard to the maintenance of a proper current of air through the apparatus.

THE TREATMENT OF DIABETES.

According to the *Journal de Médecine de Paris* for November 6, 1892, DUJARDIN-BEAUMETZ recommends the following treatment:

Immediately before breakfast and dinner he orders a glass of Vichy water (Hauterive), in which is dissolved one of the following powders:

Carbonate of lithium, ʒiiss.

Make into 30 powders, and add 2 drops of Fowler's solution to each powder.

If the polyuria is excessive, after each meal he gives with some black coffee 15 grains of

antipyrin. In the morning the entire body is sponged off with warm water to which has been added a little cologne-water, and active friction is applied with the application. The mouth is to be rinsed out after each meal with the following mixture:

Boracic acid, ʒvi;
Carbolic acid, gr. xv;
Thymol, gr. iii;
Water, Oii.

Or,

Tincture of anise, ʒiiss;
Essence of peppermint, gtt. x;
Ninety-per-cent. alcohol, Oi;
Tincture of cochineal, q.s. to color it.
Mix this with equal parts of water.

The following diet is then rigidly adhered to. The patient is to be nourished exclusively by meats of all sorts, by birds, oysters, and similar mollusks, crabs, and fish; beans, peas, carrots, Brussels sprouts, and similar vegetables are permitted.

It is also advisable to allow a certain amount of fatty food, such as sardines in oil, lard, butter, caviare, and similar articles. Various soups which contain starch may also be given. Any bread which is taken should be gluten bread or soja bread. For sweetening drinks, pastilles of gluten are to be employed. Tea, coffee, and kola are useful. Starchy foods are to be avoided. For drink, the patient is to be allowed a little red wine, either Burgundy or Bordeaux, which should be diluted with Vichy (Celestins or Hauterive, or the water of Vals). No brandy or other liquors are allowed. Exercise is advisable, but should not be carried to the point of much fatigue. The physician should insist that the patient should be out as much as possible in the open air, and massage is a valuable aid to treatment.

AN INJECTION FOR THE INSOMNIA OF CHILDREN.

L'Union Médicale for November 1, 1892, states that SIMON employs the following injection for this purpose:

℞ Chloral, gr. ii;
Tincture of musk, gtt. xx;
Tincture of valerian, gtt. xx;
Distilled water, ʒi.

This entire quantity is to be injected into the rectum, and, if necessity requires it, the dose may be repeated if sleep does not come on in the course of two or three hours.

THE TREATMENT OF ASCITES.

In the *British Medical Journal* for November 19, 1892, there is published a discussion of the prognosis and treatment of ascites, which was introduced by W. B. CHEADLE. We select from this article the following points in regard to its treatment:

It is worthy of note that in the discussion which followed this article, Professor von Schroetter, of Vienna, said that he had obtained good results from diuretin.

The objects to be sought are obvious: 1, to prevent the increase of fibrosis; 2, to remedy the atrophy and anæmia; 3, to relieve the injurious pressure of the ascitic fluid upon the abdominal and thoracic viscera.

Now, as to the means by which the first two ends are to be attained there will be, for the most part, little difference of opinion, and they may be dismissed briefly. To prevent the increase of fibrosis: abstention from alcohol and from stimulating foods. In the syphilitic cases the administration of iodide of potassium in addition. To remedy the atrophy and anæmia: nutritious, digestible food, with iron and acid and bitter tonics to aid digestion.

As to the third point, however,—the means to be adopted for the removal of the fluid from the peritoneal cavity,—there is no such consensus of opinion and practice. In looking through the text-books and treatises on medicine, with the exception of that by Dr. F. Roberts, who advocates paracentesis, a dreary uniformity of procedure is recommended. Purgatives, diuretics; failing these, tonics, or perhaps tonics are put first, to be aided by purgatives and diuretics. When all other means fail, paracentesis. This is the gist of it. It is allowed to be extremely unsatisfactory, but the routine is adhered to, and we cling to the practice sanctioned by precedent and authority, in spite of the fact that in nearly every case of recovery recorded a very different procedure has been adopted.

Purgatives.—Taking first the use of hydragogue purgatives without hesitation, that is a most disastrous and fatal practice. It is absolutely ineffectual as a means of reducing the dropsy; it is most effectual in reducing the strength and nutrition of the patient. Patients with cirrhosis, enfeebled as they are from difficulty of obtaining a minimum of aliment through the obstructed vessels, bear purging badly. It hurries the nutrient fluid through the alimentary canal too rapidly for absorption. The plan of giving the purgative in the early morning, before food is taken, mitigates, but does not neutralize, these ill-effects; a

large amount of nutritive material remains from previous feeding, and is drained away. Diarrhœa is only too apt to set in spontaneously, is most difficult of control, and of evil augury. Drastic purges are apt to set up uncontrollable diarrhœa, and the expression, "purged to death," is not infrequently sadly appropriate to the records of cirrhotic ascites.

Diuretics.—With regard to diuretics, it may be said that when the kidneys are sound they are at all events harmless. They are, however, constantly futile. It is generally allowed that diuretics fail when their aid is most needed, and the author states he has never yet succeeded in obtaining any material result in the removal of the fluid in dropsy of any kind by the aid of diuretics.

Cases are indeed recorded where the action of diuretics is credited with the cure of abdominal dropsy. Garrod, Duffin, Sieveking, and Wilks have each recorded instances in which copious diuresis has followed the use of the resin of copaiba, with more or less complete disappearance of the dropsical fluid, but the writer has never had this experience, and there are certainly many cases in which it entirely fails. Digitalis, calomel, sugar of milk in quantity; 100 grammes is stated by Dr. Germain Sée to be a most powerful diuretic, and the milk treatment of dropsies in India probably owes its success in certain cases to this element.

As a matter of fact, however, when the ascites is already great, it must be confessed (as Dr. Murchison pointed out) "that diuretics are of little avail, and fail to increase the flow of urine." The pressure on the renal veins interferes with the circulation through the kidneys, and renders diuresis impossible.

It is frequently found that while the most powerful diuretics have failed to excite the flow of urine, removal of the fluid by paracentesis is followed by a copious flow, even without the aid of diuretics. In ascites, then, while purgatives are mischievous, diuretics are usually ineffectual.

Paracentesis.—The only effectual plan of removing ascitic fluid is by paracentesis. In all the writer's cases, and in nearly all he can find recorded, repeated paracentesis has been one of the great points of treatment. And I would ask why we should nauseate and exhaust our patients with drugs, and weary ourselves in the vain attempt to remove the fluid by the roundabout channel of bowel or kidney, when it can be withdrawn by a simple mechanical process which, in these days of antiseptic surgery, is absolutely devoid of risk? Surgeons lay open the abdominal cavity for small reasons without fear, while we hesitate to insert a small trocar. I presume that the reason lies in the fact that the weight of authority, as expressed in books on medicine, is against this procedure, except as a last resource.

Sir Thomas Watson spoke of it as a final resort with the faint hope of giving temporary relief. Frerichs opposed it on the ground that pressure on the vena portæ lessens the rapidity of effusion. Niemeyer says the abdomen should only be tapped when life is immediately endangered. Thierfelder says, "This operation must not be undertaken unnecessarily, but only in response to an urgent indication, as great dyspnœa, obstinate vomiting," and speaks of it only as treatment for relief of symptoms. "Tapping," he says, "invariably affords merely transitory amelioration." Murchison long approved the rule that the operation should be delayed as late as possible,—that is, until respiration is seriously affected,—on the ground of the loss of albumin involved. Aitken refers to tapping as "the last imperfect resource of our art." In the latest edition just published of one of the leading books on "The Principles and Practice of Medicine" (Fagge and Pye-Smith), the direction is, "It should not be performed until the distress caused by the distention of the abdomen becomes insupportable" (vol. ii. p. 300). Another says, "When the abdominal distention becomes so great as to cause the patient serious suffering or distress, the fluid ought to be removed by tapping. This operation is usually delayed as long as possible, and, on the whole, no doubt properly so" (Bristowe, 7th edition, p. 761). Another: "Paracentesis should be put off as long as possible, for the end of the disease often arrives soon after tapping, although in some cases ascites is cured by the operation" (Wickham Legge, in Quain's Dictionary).

Without doubt the postponement of paracentesis until urgent symptoms arise is a grave error. A change in this direction has come over medical opinion during the last twenty years. In a paper in the *Practitioner* in 1872, and since in his book on "The Practice of Medicine," Dr. Frederick Roberts first advocated repeated tapping, and published cases in support of it. In 1881, Dr. Duncan, and in 1873, Dr. McCrew, advocated it. In 1883, Austin Flint strongly urged it, giving ten cases of recovery under this treatment. Dr. Habershon supported it, and Dr. Murchison reconsidered the matter, and pronounced in favor of paracentesis "when the abdomen is moder-

ately distended by fluid." Quite recently, Dr. Bristowe has sanctioned tapping from time to time without waiting for extreme distention. Text-books, as a rule, however, still advocate the old system.

Consequences of Ascitic Pressure.—Yet look how grave the consequences of fluid pressure in the abdomen are. The diaphragm is pushed upward, so that abdominal respiration almost ceases; the lungs are imperfectly inflated; congestion, collapse, and basal bronchitis ensue. The heart is embarrassed by the upward pressure, increasing still more the impediment to the circulation already existing in the systemic and pulmonary vessels. The movements of the stomach are hampered, and the circulation in that organ, already impeded by the portal block, is made still more difficult. In the same way the spleen, the pancreas, the intestines all suffer, while the liver itself is injuriously affected, the pressure of fluid obstructing the portal vein and, most important of all, preventing the dilatation of the venæ communicantes, the new channels upon which the relief of the obstruction so vitally depends.

The kidneys do not discharge into the portal system, but into the vena cava, and therefore are not directly affected by the venous block. Their congestion in the late stage of ascites affords striking evidence of the disastrous effect of simple mechanical external pressure of fluid. When this becomes pronounced, the urine becomes scanty, high-colored, albuminous. There ensues, in fact, a passive nephritis, a lessened excretion of urea, a slight uræmia, adding systemic poisoning to the other disorders.

It should be urged, then, that the fluid which does so much harm should be removed early, before it causes serious pressure on the viscera. The functions of the various organs will be restored and time gained for the development of the collateral circulation.

It is certain that in many of these cases enough liver tissue remains to carry on life, if only the portal circulation can be sufficiently eased and the passage of nutriment into the systemic vessels sufficiently established by the development of the collateral channels. This is, however, a work of time. Frequently the patient is carried off before it is effected by the fatal effect of the ascitic pressure, by engorgement of lungs, by hydrothorax, by general failure from embarrassment of organic functions. To gain time is of the essence of cure. This can only be done with promptness and certainty by paracentesis, and with an amount of wear and tear infinitely less than by purging or drugging with diuretics in the vain attempt to produce diuresis. The operation is perfectly free from risk if properly performed; at any rate, in the case of patients who have not reached the very last stage of exhaustion. Then, no doubt, tapping is sometimes followed by rapid sinking. I presume that this fact, and the not infrequent supervention of peritonitis in former days, led to the belief that after paracentesis the end would soon arrive, and to the counsel of delay. But there is no danger of sinking if the operation is done early; no risk of peritonitis if the trocar is aseptic. The writer has seen harm result from paracentesis three times: twice in the same week eight years ago, in the early days of antiseptic precautions, from peritonitis due to use of the same imperfectly-purified trocar; once since from collapse in a woman utterly broken down by alcoholic excess. The great number of cases known in which tapping has been repeated without ill effect, even hundreds of times, point to the intrinsic harmlessness of the operation.

Continuous Drainage.—The removal of the fluid by continuous drainage has been practised by Dr. Caille, of New York. He gives two cases in which recovery took place at the time, the patient dying suddenly of heart-failure some months later. Dr. Urso gives an account of nine cases treated in this way, but his results are not encouraging; four died directly from the operation. The best result obtained appears to have been a nine months' duration of life after. Dr. Elliot gives two cases, both fatal; so that this gives far less favorable results than repeated tapping.

Iodide of Potassium.—The drug which produces the most striking results in conjunction with repeated tapping in certain cases is iodide of potassium. The beneficial effects are probably limited to syphilitic cirrhosis. Bearing in mind, however, the close social association between alcohol and syphilis, and the impossibility of making a positive diagnosis in some instances, it is right to give the iodide in all cases when the liver is large and hard. It is right to give the patient the chance. The alcoholic cases, as a rule, no doubt bear it badly, but if it acts unfavorably, it can be omitted before material damage is done.

Mercury.—Mercury has long had a certain repute in the treatment of ascites. The author once saw the fluid entirely disappear in a case of cirrhotic ascites under the continued application of a plaster of mercurial ointment, and Murchison mentions a similar instance. Calo-

mel alone and with digitalis, blue pill, and squill and digitalis have been credited with great power in the removal of dropsies, but Cheadle does not believe them efficacious, as his experience, except in the one case referred to, has been very unsuccessful with them, even in syphilitic cases.

THE TREATMENT OF TYPHOID FEVER BY BATHING.

SIHLER, of Cleveland, Ohio, contributes to the *Medical News* of November 19, 1892, an interesting paper upon this subject, and reaches the following conclusions:

1. Americans—women, children, and men alike—experience the same beneficial effects from the cool baths that European patients do.

2. In cases in which the baths fail to reduce the temperature of the patient, they should not be discontinued; they will still have a beneficial effect.

3. The prolonged lukewarm bath (from 90° to 96° F.), with gentle effusions of cool water (from three to four pails, of from 60° to 70° F.) to the head, is often an excellent remedy in case of great excitement and inability to sleep (delirium versatile).

4. Women take to the baths more kindly than men.

5. When the fever is very high and the elevation of temperature is marked soon after a bath, it is advisable to repeat the baths sooner than the formula requires (three hours), and to give them every two hours.

6. Even when patients have reached the third week, and with hemorrhages, baths and water more or less cool should be used according to the directions of Brand in the treatment of the "degenerated" cases. Parched, smooth, fissured tongues are unknown to the hydriatric treatment.

7. The method can be used in country practice.

A few words of advice to those thinking of using the hydriatric method in private practice may not be out of place here.

1. First of all get a bath-tub made. The author had one made six months before he had a case. His tubs are made of galvanized iron, with a strong rod around the rim, four-cornered, five and three-fourths feet long, two feet wide, and sixteen inches deep. If you have a tub you will use it, and if you have your tub, thermometers, etc., on hand, your patients will be under the impression that you know all about the method. The writer's bath-tubs are among the most useful of his instruments.

2. Be present during and after as many baths as possible, and especially at first; this both for the patient's sake, who will be encouraged, and for your own sake, who will be instructed.

3. As soon as possible instruct one or more suitable persons in the use of the method. Well-to-do persons will be glad to employ them, and even those less favorably situated can have a nurse, because not much money need be spent for drugs, and because the physician can restrict the number of visits if one of his trustworthy nurses is taking care of the patient. If the family wishes or is compelled to do its own nursing, you may send such a skilled person to the house for from twelve to twenty-four hours to give instructions in the use of the baths, thermometers, etc.

4. Do not propose the method in a half-hearted way. If you are convinced that Brand and his followers are in the right, tell your patients that you consider it your duty to use the method. If your patients are like the author's, not more than one in twenty will refuse to take the baths.

5. Let your first case be one that you can treat from the beginning, and treat accurately and strictly after Brand, so that both the community and yourself will not lose confidence in the method.

6. Follow the directions of Brand, Bouveret, and Vogl as closely as possible, and do not "improve" on the method before having used it for some time.

In the author's opinion, the physician who will use the hydriatric method will find nothing but gratitude on the part of the patient and his friends. In treating typhoid fever, he will become acquainted with the useful qualities of water as a remedy, and employ baths in other febrile diseases, such as scarlet fever, measles, pneumonia, etc., and he will thus be worth much more to his patients than he was before using the baths. He will find the hydriatric method not only satisfactory from the humanitarian stand-point, but he will also find it interesting from the stand-point of the scientific observer and physiologist. He will save the lives of some and shorten the sufferings of many.

"The physician, however, who has become convinced of the method and has not the courage to combat all obstacles, does not stand on the pinnacle of his profession" (Vogl).

Brand, Juergensen, Vogl, Glenard, Tripier, and Bouveret have made it so easy for us to carry out the hydriatric treatment that we merely have to follow their directions. And why should we not do so?

NOTES ON AN ACCIDENT UNDER CHLOROFORM.

In the *Lancet* for October 1, 1892, LIEUTENANT-COLONEL LAWRIE reports the following cases:

Mukrum Khan, aged forty, a powerful Afghan Mohammedan male; disease, sinus; chloroformed at the Afzulgunj Hospital on August 19, 1892, by a student; full anæsthesia in two minutes and twenty-five seconds.

OBSERVATIONS.

H. M. S.	
8.42.20	Chloroform on cap; resisting and struggling very violently almost at once.
8.43.25	Stopped struggling; natural breathing.
8.43.30	Chloroform added to the cap; two breaths of air.
8.43.45	Respiration 28 a minute.
8.44.45	Over; cornea insensitive; cap removed.
8.45.05	Shallow breathing; jaw pushed forward.
8.45.25	Natural breathing; cornea sensitive; cap re-applied.
8.45.40	Stertorous breathing; cap removed and jaw pushed forward.
8.47.00	Cornea sensitive; cap reapplied. The cornea became insensitive almost immediately; the respiration became shallow again forthwith, and the jaw had to be pushed forward to relieve it.
8.49.00	Struggling; cornea sensitive; cap reapplied.
8.49.40	Over; cornea insensitive; cap removed.
8.50.00	Respiration becoming shallow; jaw pushed forward.
8.50.20	Respiration stopped. Dr. Lawrie at once jumped on to the table astride of the patient and performed artificial respiration by Howard's method; natural breathing recommenced after fifty-five seconds.
8.51.15	Artificial respiration stopped; jaw still kept forward.
8.52.00	Normal respiration; jaw let go.
8.53.30	Operation finished.

(The notes of this case were taken by Dr. Lawrie, and, after anæsthesia was complete, by a senior student.)

Remarks.—Immediately after the inhalation was commenced the patient struggled violently for more than a minute, and it required six or eight students to hold him on the table. Between 8 h. 45 m. and 8 h. 47 m. signs of respiratory failure occurred three times, consequently from 8 h. 47 m. no chloroform was given until 8 h. 49 m. The administration was then proceeded with, and was stopped directly the cornea became insensitive, at 8 h. 49 m. 40 s. After the inhalation ceased the anæsthesia deepened. At 8 h. 50 m. the respiration began to fail, and it stopped altogether at 8 h. 50 m. 20 s. The patient became deathly pale, and it is probable that there was also reflex stoppage of the heart. Artificial respiration was performed for fifty-five seconds; he then took a natural breath, and gradually recovered. The accidental overdosing in this case emphasizes the rule that chloroform should never be administered during the irregular breathing which accompanies violent struggling. It was quite right to hold the patient down, but the chloroform ought not to have been given until he was quiet, and the respiration was regular and natural. The rationale of the overdosing is readily explained by the research of the Hyderabad Commission. The report of the Commission demonstrates that asphyxia renders the respiratory centre extremely susceptible to the action of chloroform; and Experiments 64 and 178 show how narcosis may be produced by residual chloroform in the system after the inhalation of the anæsthetic has been discontinued.

In Experiment 64 the administration of chloroform and electrical stimulation of both vagi were commenced simultaneously at 9 h. 14 m. 20 s., and the effect was to send the blood-pressure down suddenly almost to zero, and to arrest the circulation for nearly two minutes while free respiration continued. The air in the lungs was thus gradually charged with chloroform. When the inhalation of chloroform and stimulation of the vagi were stopped at 9 h. 16 m., the blood-pressure rose rapidly again, the circulation was resumed, and the chloroform in the lungs was forthwith taken up and conveyed to the nerve-centres. Narcosis was produced, and its effect is shown in the tracing by the fall of the blood-pressure, which commenced at 9 h. 16 m., and continued until the residual chloroform in the lungs had been got rid of. This experiment reduces what happened in our case to demonstration. Residual chloroform, which was present in the system owing to previous irregularity of the breathing, was conveyed to the nerve-centres, which became narcotized; the breathing entirely stopped, and but for prompt artificial respiration the narcosis would in all probability have terminated fatally.

In order to prove to my students that it was the method of administration which was at fault and not the chloroform, or any constitutional idiosyncrasy on the part of the patient, he was brought before the class again on the 21st instant, and the wound was dressed under chloroform.

The following is the record of the second administration:

Mukrum Khan, Afghan Mohammedan male, aged forty; chloroformed at the Afzulgunj Hospital on August 21, 1892, by Dr. Lawrie; normal anæsthesia was produced in four minutes and thirty-five seconds; before the inhalation the heart was examined, and found to be healthy; the pulse, which, without my knowledge, was watched out of curiosity by Dr. Leaf, was slow, weak, and regular, and it did not vary in any appreciable degree throughout the inhalation or afterwards.

OBSERVATIONS.

H. M. S.	
9.21.45	Chloroform on cap; blowing regularly; cap close.
9.22.30	Natural breathing.
9.22.50	Chloroform added to the cap; two breaths of air.
9.23.05	Respiration 24 a minute; regular.
9.24.00	Respiration 20 a minute; regular.
9.24.08	Chloroform added to the cap; one breath of air.
9.24.40	Struggling; regular breathing; cap kept close.
9.25.15	Chloroform added to the cap; two breaths of air.
9.25.40	Snoring.
9.26.20	Over; cornea insensitive; cap removed.
9.35.40	Dressing finished.

The second administration helps to confirm the contention of the Hyderabad Commission that the respiratory centre is peculiarly susceptible to chloroform when it is asphyxiated. In the first administration the respiratory centre was accidentally partially asphyxiated, and full anæsthesia was promoted in two minutes and twenty-five seconds. In the second administration, though the chloroform was given in the same way, and the cap was held just as close to the patient's face as in the first, the breathing was natural and regular throughout, and anæsthesia was produced in four minutes and thirty-five seconds. Finally, it is probable that the asphyxia, which occurred at the commencement of the inhalation, was a factor in the overdosing which took place in the first administration. I believe I am right in stating that Case 1433 constitutes the first reported instance of an accident under chloroform in which notes of all the events that occurred throughout the entire administration were recorded at the exact time of their occurrence.

NOTE ON ETHER AS A MENSTRUUM IN MEDICATION BY THE SKIN.

Sir James Sawyer (*Pharmaceutical Journal and Transactions*, October 15, 1892) especially invites attention of pharmacists to the advantages of ether as a menstruum for the preparation of remedies which act through the skin. Experience has confirmed and extended his views of this drug since two years ago, when he first proposed this new use of ether. This method indicates a practical advance in our remedial resources which promises further useful application both in human and in comparative therapeutics. Not every officinal compound "for outward application only" can be accredited with percutaneous energy. Until ethereal tinctures and liniments were used, we were accustomed in medical practice to present many remedies and many different preparations to the skin, with the view of producing remote or local effects, or both, in the form of compounds very ill designed for their special purpose.

The officinal formulæ of outward applications include emplastra, various liniments of alcoholic, saponaceous, or oleaginous composition, and certain fatty unguents. Of these medicaments for enepidermic use the oily liniments and the ointments, because of their easy admixture with the sebaceous secretion of the human skin, are probably the most active. It is probable the structure of none of the fourteen plasters of the British Pharmacopœia is such as to permit the absorption of their active ingredients by the skin. The body of an officinal plaster is made of litharge in union with oleic, margaric, and stearic acids, or of wax, of lard, of frankincense, of resin, of soap, of suet, and of some fixed oils, in various combinations. "Neither a plaster so formed," as Sawyer writes in his former papers upon this subject, "nor a solution in alcohol of the active principles of drugs is a scientific medicament for enepidermic employment and percutaneous action, if we have regard to the structure and physiology of the human skin." In practice it is found that there are at least three separate obstacles to the absorption of a medicine through the skin,—namely, the fatty sebaceous secretion of the skin, the epidermis, and insolubility of the drug. So far as the author knows, ether is the best menstruum for the solution of many remedies for local use through the skin. It is a good solvent of the active principles of many drugs, and it is a ready solvent of the fatty constituents of the sebaceous secretion of the skin. An ethereal liniment supplies the most intimate application of a remedy to the bare dermal surface.

Dr. Lauder Brunton has written, "It would appear that the fat of the skin, as well as the epidermis, presents an obstacle to the absorption of substances in solution; but when

they are applied in such a form that they can readily mix with the sebaceous matter of the skin, they are tolerably readily absorbed; as, for example, when they are used in the form of ointment. . . . They are absorbed also when dissolved in ether, and especially in chloroform, even when simply painted over the surface. Alcoholic solutions are not absorbed when painted in this way." Chloroform has many disadvantages, but ether is an excellent agent for use either as a menstruum, in tinctures for external employment, or as a simple solvent for the preparation of a liniment.

Sir James Sawyer has proposed and used several ethereal tinctures for dermal employment, —namely, of belladonna (tinct. bellad. ætherea), of capsicum, of iodine, and of menthol. It is probable that physicians and pharmacists will find other useful developments of ethereal preparations as remedies applied to the skin.

THE PRESCRIBING OF PRISMS.

Dr. Ernest F. Maddox (*Ophthalmic Review*, February, 1893) contributes an article upon this subject, containing such clear directions in regard to his views on the method of prescribing prisms, that it is reproduced in its entirety:

Much discredit is likely to be thrown upon prisms if they are prescribed too promiscuously. In their own sphere they are of great value, but outside it they will of course cause disappointment. He should be sorry to see the glass-rod test so misapplied as to be considered in itself an infallible guide to prisms. It is a perfectly reliable and delicate test for one symptom,—viz., the latent equilibrium of the eyes for the distance at which the test is made. Were our vision always for a distance of five metres in daily life, or for any other invariable distance, the rod test would give us the exact strength of prism which it would be advisable to wear when muscular asthenopia is complained of. But since we are concerned with vision for all distances, we have to take into account, and make a study of, the great function of convergence. We may do this by a series of three or four tests, beginning with the simplest and quickest, and dispensing with the latter ones if they appear unnecessary.

The first test is the familiar one of approaching the finger towards the root of the nose till one eye diverges, fixing the patient's attention upon the finger-nail all the while as strongly as we can. The test is far from a perfect one, but it is so readily made that it should never be omitted. The distance at which the effort to converge is given up indicates the near point of convergence, not so strictly as the dynamometer, but sufficiently for our purpose. In practice one gets into the way of judging as much by the appearance of convergence in the two eyeballs as by the distance of the finger, and this is really a good habit, for the finger may often pass far within the near point of convergence before the effort to converge is given up in sufficient measure to become apparent to an observer. It is well, therefore, to cultivate the habit of observing how much appearance of convergence we should be able to impart to normal eyes.

After approaching the finger within a certain distance, one eye rotates outward, while the other still remains directed to the finger. This is due to the abandonment of the converging effort as soon as the impossibility of converging for so close an object is realized. Though the eye which deviates has perhaps less distinct vision for the finger, it must not, of course, be supposed that the diverging eye has necessarily a weaker internal rectus than the other, nor that the test is one which estimates the strength of the internal recti. It is the function of convergence which we are testing, and that only. The result informs us as to the "near point of convergence." In normal subjects it can easily be shown that, by making both eyes move to the right, or both to the left, a much greater adduction can be imparted to either eye than is possible by approaching a finger straight towards the root of the nose. Indeed, in the latter case there may be no convergence at all, while perfect movements of both eyes together to the right or left are demonstrable. These simple facts are familiar, but they cannot be repeated too often, as one still sometimes hears "insufficiency of the internal recti" spoken of, instead of "insufficiency of convergence."

By combining in our minds the greatest apparent convergence in the eyeballs that we are able to produce, and the distance from them of the point at which one eye rolls outward, we can form a very fair estimate of the positive converging power of the individual. If the converging power is manifestly defective, we proceed to test the latent conditions of equilibrium for distant and near vision by the "rod test" or the "card test" respectively, or, if these are not available, we may do the best we can with the ordinary "cover test." In this latter we should cover an eye with the hand for at least half a minute before removing

the hand to notice the amount of readjusting movement that takes place in the eye when restored to vision. By carefully-timed experiments he has found that in his own case an eye excluded from vision begins to deviate in less than half a second, and does not appear completely to cease deviating for half a minute. By far the largest part of the deviation, however, has taken place in from five to ten seconds, so that when a quantitative estimate is not desired, a quick observation can be made.

The "cover test" should be made first with the patient fixing a distant object, and then fixing a near one, such as the finger-nail at ten or twelve inches, or, as suggested by Hansen Grut, a printed letter or small piece of printed paper on the finger-end. If the rod and card tests are available, the cover test can be dispensed with, since it needs much more skill and gives very inferior results.

The rod test need not be again described. The best form for use is a series of small glass rods about an inch long, arranged parallel to each other, and in close contact. Any one can make this for himself by breaking up a long glass rod of about one-eighth of an inch in diameter into short pieces of equal length, laying them side by side on a hard surface, such as a marble mantel-piece, to get them perfectly level, and then fixing their ends with sealing-wax. The advantage of this form is the ease with which it is held opposite the patient's pupil, for one of the rods must be in front of it. By using this arrangement of rods even the stars can be made to yield delicate lines, though for this purpose it is best to collect as much of their feeble light as possible by using a plano-convex cylinder with a radius of curvature of twenty millimetres. By its means exquisitely delicate lines are produced, of great beauty. The results are practically the same as with vision for six metres. Of course stars are not clinically available, and he mentions the fact for the sake of interest only.

Having made the "finger test" and the "rod test," we next proceed to make the "card test." This, too, has been described elsewhere, so that much need not be said about it. At reading distance, divergence of 3° or 4° is the usual latent deviation under physiological conditions, though not quite invariably so. As we look farther and farther away the divergence becomes less, till at six metres it is generally inconsiderable, and in many cases it gives way to slight convergence long before that distance has been reached. He once thought that the latter condition—*i.e.*, latent convergence in distant vision—was the rule, but his earliest experiments, by a difficult method, had to be made on too limited a number of subjects, and later investigations by the more rapid rod test, made in Mr. Berry's clinic, at his request, showed that slight latent convergence at six metres is rarer in emmetropes than slight latent divergence.

The conditions which he formerly described in *near* vision, however, and the gradual diminution of the near latent divergence as vision recedes, have been amply confirmed by later methods.

The "card test" can be made for use at various distances,—*e.g.*, 1 metre, .5 metre, .33 metre, or .25 metre,—but for practical purposes .25 metre is perhaps the most convenient distance. A card printed with a single vertical arrow, the foot of which rests on a horizontal row of figures, representing degrees at the distance of the test, is obtainable. It is well to fasten to the card a piece of thread .25 metre long to hold it at the proper distance. It is then duplicated by a vertical prism of 12° (6° D.) before one eye, when the point of the lowest arrow will point up to the figure expressing the degree of duration.

He has generally been satisfied with the three tests,—the "finger," "rod," and "card" tests,—without proceeding to the fourth, which was suggested on pp. 90 and 94 of his book on "Prisms,"—viz., the "relative range, with vision for occupation distance." By "relative range of convergence" is meant the extent to which convergence can be artificially increased or relaxed while accommodation remains the same, being maintained, as during the patient's daily occupation, for some object at a definite distance. The greatest obtainable excess of convergence constitutes the positive part of the range, and the greatest possible diminution constitutes the negative part of the range. The positive range we measure by finding the strongest adducting prism that can be worn without destroying single and distinct vision of the object looked at, and the negative range by the strongest abducting prism that will fulfil the same conditions. It is, of course, necessary to see that the object remains distinct as well as single, for it sometimes happens, especially if double-revolving prisms be used, that a patient will surrender his accommodation to retain his singleness of vision, rather than surrender his singleness of vision to retain his accommodation.

He gave this test a place in his book, in an ideal investigation, only second in importance

to the absolute convergence, and theoretically it is an admirable test. It takes time, however, and some intelligence in the patient, so that he would now reserve it only for unusual and important cases. It is well to depend mostly on rapid tests, and we are then less tempted to omit them if pressed for time. Dr. Percival, however, has taken up this test, and seems to prefer it to the others. Dr. Maddox will be glad if he can increase its usefulness, as he has endeavored to do so by seeking to establish an "area of comfort." The idea is a good one and worth working out. He suggests, however, as a working hypothesis, that the area of comfort corresponds to the middle third of the relative range. To put this in language which some will perhaps understand better, if the highest adducting prism compatible with single distinct vision of an object be more than twice the strength of the highest abducting prism, or *vice versa*, the "area of comfort" is transgressed, and relief will be afforded by prescribing prisms.

Dr. Percival's rule might perhaps hold good for near vision, but for distant vision it will certainly need alteration, for normal individuals overcome adducting prisms, with great ease, of more than twice the strength of the highest abducting prism they can tolerate. So that, were this rule true, all these would be in discomfort. Dr. Maddox, for instance, can only just overcome a prism of 6° (3° D.) with its base in, while he can easily overcome one of 22° (11° D.) with its base out, in negative accommodation.

He thinks, however, that Dr. Percival's idea of an "area of comfort" is a good one, and only needs working out more thoroughly. In practice, it is best to work on as few rules as possible, so as to take a broad view of each case. The "area of comfort," for instance, in a healthy man would be enormously greater than in a neurasthenic, and no rule could be made to hold good for both.

In prescribing prisms he would recommend the following maxims: 1. Never order them unless the indications for their use are unmistakable. 2. Never order them simply on account of an anomaly in the behavior of the eyes under various tests, unless there is asthenopia, headache, tendency to diplopia, or giddiness, possibly relievable by them. 3. Do not judge by one test, but by the "finger," "rod," and "card" tests, and, if specially indicated, the "relative convergence" test also. 4. Remember that considerable latent deviation in distant vision is more important than in near vision (though the latter is not to be ignored), and that moderate divergence in near vision is physiological. 5. Always more or less undercorrect with prisms.

It will, he thinks, be evident from what he has said that the rod test was never meant by itself to be an exact guide to prescribing prisms. It contributes its own evidence well and trustily, but other evidence has to be gathered also, and every case treated on the principles of common sense, and under the guidance of an intelligent grasp of the physiology of the subject.

But while all this is true of deviations on the horizontal plane, there is a sphere in which the rod test alone *does* form a reliable indication of the strength of prism required. He refers to *vertical* deviations, for in them there is no converging function to complicate matters, and latent vertical deviations (hyperphoriæ) remain much the same in amount whatever be the distance of vision. It is true they are rare, though not so rare as they are thought to be, and their correction is often extremely satisfactory. Slight latent vertical deviations cause far more trouble than slight horizontal ones. It is desirable, when possible, to test them more than once to see if they are constant, and it is surprising how often after years have elapsed they are present to the same degree as before.

Hyperphoria may be divided into two great classes,—the simple and the paretic. Simple hyperphoria is much the commoner in his experience; in it the degree of vertical deviation remains unchanged, whether the eyes are directed downward or upward. It answers, in fact, to concomitant strabismus, and it is impossible to tell whether the fault is due to a deviation of one eye upward or of the other eye downward. In paretic hyperphoria the latent deviation is greater in some directions than in others, and by using the rod test it is easy to discover which eye is at fault and which muscle is affected.

Paretic cases are not so suitable for prisms, for they tend to recovery of themselves, though sometimes partial correction by temporary prisms may give satisfaction for a time.

The *highest* degree of hyperphoria he has seen was 10° in a young man of robust health, about to leave school. He had no headache with it, perhaps accounted for by the fact that he had not only had it from infancy, as evidenced by the occasional rolling up of one eye, but also that his grandmother was liable at times to a rolling up of the eye of the corresponding side. With hereditary transmission of the defect there was also probably transmitted a toleration of the same.

The *smallest* hyperphoria he has seen causing headache and discomfort in vision, relieved by prisms, was 1°. The hyperphoria was simple and not paretic, was of exactly the same degree on two different examinations, and the refractive correction of each eye was + .5 D. sph.; + .25 D. cyl. She complained also of occasional diplopia and frequent threatening of diplopia, and the interesting piece of history was elicited that even when a girl she could never combine the two pictures in a stereoscope, but always saw them partly superposed. It is more than probable that this hyperphoria had existed most of her life, but had only come to give her trouble during the last few months from diminished power of overcoming it. Perhaps this may also explain the case of an old gentleman with right hyperphoria of 5°, the symptoms of which had only troubled him for the last few months. It is difficult to conceive how such a latent deviation could suddenly develop, as there was no paretic element in it. It is possible that he, too, may have had it through life without causing him any trouble till the power of overcoming it was reduced. What makes it still more probable that its existence was of long standing is that it caused no headache or asthenopia, but only bewilderment from a want of fixity in vision, and frequent threatening of double vision. Prisms of 4° (2° D.) before each eye removed these symptoms and made objects appear solid and stable.

The persistency of hyperphoria is very remarkable. In a doctor of his acquaintance he noted at two separate times, so far apart as two years, a persistent hyperphoria of exactly 1½°. The headache from which he has suffered for many years is very likely connected with it, but Dr. Maddox has not yet prevailed on him to try prisms. He has also .5 D. of hypermetropia.

In true hyperphoria one eye turns up when it is covered as much as the other turns down when it is covered. In Mr. Berry's clinic they have noticed some rare aberrant forms of hyperphoria in which one eye turns up without the other turning down, or in which either eye turns up when covered. These are, of course, not the cases for prisms.

Prisms to correct hyperphoria should, of course, be equally divided between the two eyes, and should be edge up before the eye that deviates upward and edge down before the other eye. A practical point about prisms is that they are tolerated of greater strength when vision is imperfect, as from corneal nebulæ, or in an unobservant patient.

SIMPLE METHOD OF OPERATING FOR PARTIAL TENOTOMY OF THE RECTI MUSCLES (GRADUATED TENOTOMY).

Dr. Eugene Smith (*Archives of Ophthalmology*, January, 1893), on the basis of several years' experience in the following simple manner of making partial tenotomy of the recti muscles in heterophoria, gives it to the profession with the remark that it is as effective as it is easy.

The instruments required are an ordinary stop speculum, a small triangular knife, the stop keratome of De Wecker, and a peculiar ring forceps, each branch of which ends in a sharp hook. When closed the forceps form a small ring at the points. Under cocainization the eyelids are held open with the speculum, the belly of the muscle is seized at the equator of the eye, while the patient looks in the direction opposite to the muscle to be operated on, —that is, inward, if the external rectus is to be cut. The full width of the muscle and the conjunctiva over it are seized with the forceps, the sharp points of which pierce the conjunctiva and grasp the muscle, holding it securely in the ring. The muscle is then drawn away from the eyeball in such a manner as to put the tendon on the stretch, while the point of the triangular knife is pushed through the conjunctiva and centre of the tendon at its attachment to the sclera. If, in the judgment of the operator, the division of the tendon made by the forward movement of the knife is deemed insufficient, or found to be so on testing, the muscle is again seized with the forceps, the knife again entered at the same wound in the conjunctiva, and by lateral movements the tenotomy is enlarged. The small wound in the conjunctiva usually closes by its own elasticity, the bleeding or effusion beneath the conjunctiva is slight, and seldom does overcorrection occur. No dressing is required.

FURTHER COMMUNICATION ON THE TREATMENT OF TRACHOMA.

H. Knapp (*Archives of Ophthalmology*, January, 1893) communicates a second paper on his method of treating trachoma chiefly with the roller forceps which he has devised. The mode of operation remains the same as he originally described it in the *Archives of Ophthalmology* for January, 1892.

In all severer cases of trachoma he uses general anæsthesia, for the operation is tedious and *the success depends on its thoroughness*. All the soft trachomatous material should be pressed

out from every portion of the conjunctiva in which it is deposited, visible or invisible. This can be done at the commissures and caruncle as well as in the tarsal and retro-tarsal portions. The roller must pass repeatedly over each place to secure the complete liberation of the trachoma substance. This substance being soft and gelatinous, it will come out by a pressure that does not interfere with the integrity of the cellular and fibrous elements of the conjunctiva. There is commonly free hemorrhage, which seems to be rather an advantage than a drawback as to the recovery. In no case has he seen sloughing or ulceration of the conjunctiva. Small ruptures of the surface of the conjunctiva occur, of course, whether we scarify this membrane or not. The next day the posterior part of the palpebral conjunctiva is agglutinated to the reflex fold in many cases, and the advice is given to solve these adhesions with a probe. He has done this also at the beginning, but has found it of no importance, for these agglutinations disappear with the swelling and the fibrinous deposit of the conjunctiva. Where portions were cut off, adhesions and shortenings were permanent.

The *indications* for the expression treatment are contained in the following sentence: *Expression is indicated only where trachomatous substance can be pressed out.*

In the *first place* are those cases in which spawn-like granulations are deposited in the conjunctiva without inflammatory irritation,—the cases of *pure, non-inflammatory, follicular trachoma.* This variety of trachoma is not infrequently limited to one eye, and he doubts very much whether it is contagious. He is inclined to consider it as an analogue of the adenoid or follicular hypertrophies of the naso-pharynx. They occur, as the latter, mostly in youth, rarely under five years or over twenty. He has no experience of their spontaneous disappearance without producing atrophy of the conjunctiva, but does not doubt it. Expression cures the great majority of them without any other treatment, but it alone does not cure them all. A small number return with relapses, usually mild ones, which are speedily cured by another expression. A few are made worse by expression,—*i.e.*, the apparently pure, non-irritative, follicular trachoma is, by the mechanical treatment, converted into the inflammatory form of trachoma. The mucous membrane swells, burns, pains, secretes, and in the course of weeks becomes again the seat of miliary or spawn-like granulations, just as we see this deposition occur in the course of acute catarrhal conjunctivitis. He has noticed five such cases. The primary treatment of this inordinate reaction should be—as in the period of reaction in every case of expression—purely antiphlogistic: bathing the lids with cold water and washing the conjunctival sac out with a mild antiseptic solution. When the reaction is over, and the conjunctiva remains swollen and uneven,—the so-called papillary hypertrophy,—nitrate of silver (one-per-cent. solution) is of advantage; and when the spawn-like granulations have developed, and the conjunctiva is not much swollen, the rolling should be repeated. Of late he has mostly used the sulphate of copper crystal as after-treatment, until the conjunctiva was smooth and completely free from granulations.

The *second class of trachoma*, which may be designated as *secondary, consecutive, inflammatory, or complicated trachoma*, comprises those cases in which the deposition of granules is preceded, accompanied, or succeeded by some form of conjunctivitis, commonly catarrhal or blennorrhoic in its nature. These cases are *contagious* (perhaps from the microbes of the original or complicating conjunctivitis) and *destructive*, producing shrinkage of the conjunctiva and corneal ulceration. Mostly both eyes are affected. This vast class of cases, which are chronic, with a marked tendency to relapses, is not cured by expression alone, yet it is greatly benefited by it. As long as there is hyaline infiltration, either granular or diffuse, this should be pressed out. He scarifies such eyelids rather deeply, presses the liquid and soft material out, and rubs a solution of bichloride of mercury (1 to 500) into the tissue with a pellet of absorbent cotton or a tooth-brush, the grattage of Darier and others. This treatment is based on mechanical and germicidal principles, according to generally-accepted theories. The results have, of course, not been so brilliant as in the non-inflammatory, follicular trachoma, yet the treatment has abridged the recovery essentially, and in many cases also put a stop to the progressive destruction of conjunctival and corneal tissue. This surely is an immense advantage. He has not seen that corneal ulceration or pannus has been made worse by this kind of treatment. It is not infrequent to see the ulcerous or pannous cornea become somewhat more opaque during the period of reaction from the mechanical and caustic treatment, but the increase of the opacity disappeared quickly in all cases that have come under his notice, and the corneæ afterwards became clearer than they were before the operation.

A *third form* of trachomatous disease, which he has seen on the upper lids only, and he

would call *sclerosing trachoma*, are those tough excrescences which are most obstinate, and when once fully developed resist all kinds of treatment. Cases which he has watched from the beginning show in their initial stage the ordinary, rather vascular, lid granules. The copper crystal does not affect them, or rather favors their growth. In the course of months and years they multiply and cover the upper tarsal and retro-tarsal conjunctiva in the shape of irregular, hard, red excrescences, flattened on their surface by the thickened and heavy lid. Some of them can be raised with a probe, when they exhibit a pedicle and a mushroom-like, often notched, and lobulated head. Cut off with scissors, they feel tough, and show under the microscope an irregular structure of dense fibrous tissue surrounded with vascular epithelium. In their further course they become pale, and ultimately completely white. The everted lid looks like a section of a dense fibroma. The disease lasts years, has no great tendency to affect the cornea, resembles in a certain stage the pale, tessellated tarsal conjunctiva of Saemisch's spring catarrh, but never shows the circumcorneal thickening. Strong remedies make it worse; mild washes, in particular a 1 to 5000 solution of bichloride of mercury brushed over the inner surface of the upper lid five or six times daily, seem to do good. The disease may be, and, as far as he knows, usually is, recovered from without great roughness of the conjunctiva or damage to the cornea.

Summing up the RESULTS of the treatment sketched above, they are as follows:

1. Rapid, perfect, and permanent recovery by expression alone, or expression followed by a course of mild caustic treatment, takes place in the majority of cases. This refers chiefly to the cases of pure follicular trachoma.

2. Imperfect recovery—*i.e.*, disappearance of trachoma, but leaving more or less shrinkage of the conjunctiva—is the common issue of old, neglected cases of inflammatory trachoma.

3. Relapses occur of both simple and inflammatory trachoma. They have been recorded in ten cases of the first series and in eight of the second. The majority of patients come back with a relapse, after having felt comfortable and done nothing for their eyes, many months after the operation. The relapses were most promptly cured by a second expression; in a few cases a third was necessary. In two cases the steady after-treatment with the copper crystal did not prevent a relapse. They had been treated as out-patients and worked in a dusty atmosphere.

4. The operation itself has neither destroyed nor injured an eye.

In conclusion, he states that the mechanical treatment, with or without scarification and impregnation of the lid with corrosive sublimate, does not cure all cases of trachoma, but it benefits and cures the great majority, and always abridges the recovery. In rare instances it converts a simple trachoma temporarily into an inflammatory trachoma, but injures no case permanently.

KERATO-MALACIA IN YOUNG CHILDREN.

MR. HOLMES SPICER (*Ophthalmic Review*, January, 1893) refers to the fact that young children are more liable than adults to gangrene of the cornea when their vitality is reduced below a certain level. The gangrene may occur spontaneously, or as the result of slight attacks of conjunctivitis. In the late stages of tuberculous meningitis and in infantile diarrhœa the cornea undergoes destruction, but this is due partly to exposure and partly to insensibility. After measles or whooping-cough with bronchitis, and in malignant varicella, where there has been much exhaustion, the cornea is not infrequently seriously damaged by large perforating ulcers. After serious malnutrition the cornea may slough spontaneously; this is not uncommon among nurslings in countries where the mothers practise long religious fasts; in this country it is rare, except among the hand-reared who have had insufficient nitrogenous diet. Kerato-malacia generally attacks both eyes of children from four to nine months old; it begins with dryness of the conjunctiva, with patches of froth on its surface, and with night-blindness; soon the whole cornea becomes opaque and perforation occurs; the cases often terminate fatally.

The treatment should be increase of the nitrogenous elements of food, some meat juice or raw meat finely pounded, in addition to milk for young babies, and cod-liver oil; and locally, eserine in the form of ointment to the eye, with warm applications to the lids. Some of the cases with this treatment made a good recovery; in one case the cornea recovered, although the child succumbed eventually.

THE EMPLOYMENT OF OIL OF TAMAQUARY IN CORNEAL AFFECTIONS.

M. MELLO VIANNA (*A Medicina Contemporania*, October, 1892; abstract *Annales d' Oculistique*, January, 1893) has studied in detail the chemical composition, the pharmacology,

and the physiological properties of the oil of tamaquary, derived from a tree in the Amazon province, belonging to the family of Ternstroèmias. He recalls the fact that this substance was first used in ophthalmology by Moura Brazil in 1883. Since then it has been used experimentally in De Wecker's clinic. Vianna, resuming this study, has used tamaquary oil in all affections of the cornea, and, without going into the details of the forms of keratitis thus treated, it may be said that his results are worthy of attracting the attention of lovers of new therapeutic proceedings. According to him, all kinds of keratitis, except, perhaps, interstitial keratitis, are advantageously affected by this medicament, but its action is especially efficacious in phlyctenular keratitis. Out of a series of seventy-eight cases of this affection, the author had seventy-eight recoveries. The following is the formula which he uses:

White vaseline, 10 grammes;
Tamaquary oil, .40 gramme.

A few particles of this salve are applied directly to the cornea, and then the upper lid is rubbed slightly over the surface. The local treatment must never cause general medication to be neglected.

EXTRACTION OF CATARACT BY A SEMI-ELLIPTICAL SECTION WITHOUT IRIDECTOMY.

GALEZOWSKI (*Recueil d' Ophthalmologie*, December, 1892) discusses the three principal points of the operation,—namely, the shape and extent of the section, the incision of the capsule, and the expulsion of the cataract. As he has shown in his first article, the shape of the section must be semi-elliptical, the puncture and counter-puncture being made in the sclerotic edge, just at the limit of the opaque portion of the cornea, so that these punctures are very regularly placed, and at a fixed and well-defined height.

Drawing an imaginary horizontal line in the direction of the base of the Daviel section and another across the incision of the Graefe section, he makes his puncture and counter-puncture exactly at an equal distance from these two lines. After making the puncture in the sclerotic edge at the point designated, he performs section of the capsule with the point of the knife, passing rapidly towards the opposite edge of the cornea to make the counter-puncture. He then shapes the section in a semi-elliptical form. This section must have its apex, like Daviel's, two millimetres from the superior edge of the cornea. The limits of the section must be designated in advance. The spot where the puncture and counter-puncture are to be made must be exactly indicated, and the place of the apex of the section must be marked, for it is not to be forgotten that it is the basis of the whole operation, and any transgression of this rule may cause failure in the result, lead to complications in the execution, and render the performance of the method difficult.

The incision of the capsule with the knife is not obligatory. It is easily made if the anterior chamber is large, and if the cataract is not soft; otherwise it can be made in the second stage of the operation. It is indispensable to give the knife an oblique inclination from back to front as soon as the counter-puncture has been made, and terminate the incision of the section by drawing the edge of the knife forward. By proceeding in this manner one avoids wounding the iris, which might at this point in the operation be projected upon the knife.

After the first portion of the operation is finished, it is indispensable to withdraw the blepharostat and to effect expulsion of the cataract by depressing the inferior eyelid with the thumb of the left hand, and by raising the superior eyelid with the third finger of the right hand. In making pressure through the inferior eyelid on the globe of the eye, the crystalline lens is pushed towards the wound, while the edges of the latter are separated by means of a spatula supported on the globe of the eye above the wound. During the expulsion of the crystalline lens the pressure on the globe must not be arrested until all the cortical layers have been pushed out; not until then can the iris be returned to the anterior chamber by means of a blunt probe. By this manœuvre it is sought to detach the iris from the two angles of the wound; otherwise one would run the risk of having an inclosure of this membrane and consequent iritis.

If the crystalline lens is very large, or if it is difficult to expel it from the pupil, the operator should not hesitate to excise the iris sphincter, or merely to perform sphincterotomy. The iris is seized with a fine pincers and the pupillary iris is split. When the crystalline lens is expelled, the two sections of the iris wound are compressed into the anterior chamber and the dressing is made. In these cases the eye heals readily, and the chances of iritis are less to be feared than under other circumstances.

The operation for cataract without iridec-

tomy must be reserved for hard, total, or partial cataracts which have no complications, either in the constitution of the individual or in the condition of the internal membranes of the eye. In all choroidal and traumatic cataracts, and in all those which are developed in diabetic, albuminuric, or nervous individuals, and in children's cataracts, extraction with iridectomy ought to be performed, either by placing the Graefe corneal section on a peripheral line, or by simply shaping a Galezowski semi-elliptical section. After the operation is finished it is indispensable to instil several drops of eserine collyrium into the eye to contract the pupil strongly. This prevents projection of the iris into the wound and its consequent hernia.

To avoid secondary cataracts, Galezowski recommends a complete cleansing of the posterior chamber and of the pupillary space by means of a curette; but if, in spite of these precautions, secondary cataract begins to form, its absorption should be facilitated by antiphlogistic treatment and preparations of belladonna. A second operation must not be performed too soon. The experience of Galezowski is that one should wait six months, a year, or even more, before attempting a second operation by discission or extraction of the capsule. The corneal wound may be a long time in healing, although generally the cure is complete at the end of ten or twelve days. There are cases in which, in spite of good coaptation of the edges of the corneal incision, the latter allows the aqueous humor to filter through, and cicatrization is not accomplished for fifteen, twenty, or twenty-five days.

PTERYGIUM AND THE OPERATION FOR CATARACT.

Dr. A. Trousseau (*Annales d' Oculistique*, January, 1893), writing concerning the combination of cataract and pterygium, states that since Poncet described numerous bacteria beneath the apex of the pterygium, many authors have concluded that a corneal section was in danger of infection if performed on an eye on which a pterygium was growing. He refers to the fact that Noyes recommends performing the operation for cataract after the removal of pterygium, and that recently Würdemann (for abstract of Würdemann's article, see Therapeutic Gazette, December 15, 1892, page 843) wished to apply this precaution of removing pterygia to every ocular operation.

He thinks, however, that it is doubtful if the presence of pterygium is sufficient to cause trouble, and points out the fact that, under many circumstances, particularly among the working-classes, the necessity of a double operation—one comprising removal of the pterygium, which necessitates considerable delay before the extraction of the cataract can be made—is a matter of the most serious consideration; hence it is important to find out whether the belief in the danger of pterygium is well founded. He refers to the fact that the bacteria which have been described in connection with pterygium are of very indefinite powers and have never been properly isolated, and consequently he determined to perform an operation for cataract in spite of the presence of this type of conjunctival growth. If necessary, he would make the section of the cornea a little oblique, so as to be above the superior edge of the pterygium. He has performed the operation fifteen times under such circumstances, having only two accidents. In one there was hernia of the iris and in the other delay in the union of the corneal wound, accidents which might just as well have happened if the pterygia had not been present. He states further that his colleague, Valude, does not hesitate to operate for cataract in the presence of pterygium.

ESERINE IN THE TREATMENT OF GLAUCOMA.

Königstein (*Wiener Medizinische Blätter*, No. 2, January, 1893), discussing the indications for the use of myotics in glaucoma, writes:

1. In the prodromal stage eserine tends to abort the attack. If a drop of the myotic is instilled into the patient's eye at the beginning of the symptoms, the attack will pass off in a short time, and thus the passage from the prodromal to the directly glaucomatous condition can be prevented, or at least deferred. One must not depend, however, too much upon this, and if there is danger of progress in the symptoms, surgical intervention is necessitated.

2. During the acute inflammatory stage eserine is instilled to lower the tension, to relieve the suffering, and temporarily to dissipate the attack, if for any reason operation must be deferred.

3. The application of eserine is further indicated as a preparation for the operation. The dilated pupil is contracted, the surface of the iris enlarged, and the technique of the operation facilitated. Moreover, it gives the best indication of what portion of the iris to excise, as well as pointing out which portions of the

iris are atrophied, by virtue of the fact that these areas are not influenced by the myotic action.

OCULAR OPERATIONS PERFORMED IN THE OPHTHALMIC SERVICE OF THE VENETIAN HOSPITAL.

M. Gossetti (*Annales d' Oculistique*, January, 1893) analyzes four hundred and eighty-eight operations, and the following *résumé* contains the most important points:

Cataract.—The author has never abandoned the superior corneal section combined with iridectomy. Among one hundred operations only one panophthalmitis developed, and that was in a young woman who had serious renal disease. According to this author, real antisepsis is not possible in ocular surgery, inasmuch as the solutions which ought to be used would be much too strong and too irritating for the eye. He uses a sublimate solution (1 to 3000), which he thinks is quite strong enough for an antiseptic. [It is much stronger than necessary.—Ed.] Intraocular irrigations are a complication of the operation, and the author declares himself opposed to their application.

Total Staphyloma.—He practises resection of the staphyloma at its base, not followed by a suture. The bandage is changed after five days, but the eye is not opened until the seventh or tenth day.

Sympathetic Ophthalmitis.—There is one remarkable observation of a boy of eight years attacked with serious sympathetic ophthalmitis, soon followed by cyclitis. A subconjunctival injection of sublimate and another made twelve days later controlled the disease. In consequence of imprudence, there was a relapse, which was controlled by a third injection.

A NEW METHOD OF MANIPULATION FOR REPLACEMENT OF THE DISLOCATED LOWER JAW.

Roth (*Lancet*, No. 3626, 1893) describes the following method of reducing luxation of the lower jaw:

The patient is seated in an ordinary cane-bottomed chair; the operator stands before him with one foot placed slightly to the right side and the other just in front of the patient and in the middle line. The operator is thus on a firm basis, with the legs well apart and fully extended. He then flexes himself at the hips, and asks the patient to lean forward and to place his forehead in the middle of the sternum of the operator's chest (but this position varies with the size of the patient's head). The operator now flexes his head so that his chin grips the patient's head about the upper part of the occipital bone; he thus acquires a firm hold, and has the head well under control between his chin and chest. The thumbs, protected in the usual manner, are placed in the patient's mouth, and the fingers of both hands grasp the lower jaw. In this position reduction is facilitated, and the advantages over the ordinary methods are as follows: 1, the operator has the head under perfect control and perfectly fixed; 2, the line of force exerted by the operator's hands acts in the same line as the resisting force exerted by the operator's chin; 3, the operator's elbows being well flexed, he can exert a greater power by the force acting through the thumbs being close to the shoulders, and it will be found that he has greater power of muscular action in the terminal phalanges of the same; 4, the patient's head is also in a better position for replacing a dislocated jaw; 5, the operator needs no assistant, and does not inconvenience his patient by the excessive pushing and pulling about of the head during the reduction.

TREATMENT OF HEMORRHOIDS.

Rossolo (*Annales d' Orthopédie*, tome vi., 7 année, No. 2) warmly recommends chrysarobin in the form of a suppository in the treatment of hemorrhoids. The suppository is made up as follows:

℞ Chrysarobin, gr. i;
Coca-butter, gr. xxx;
Iodoform, gr. ½;
Extract of belladonna, gr. $\frac{1}{10}$.

This treatment is also advocated by Macdonald, who reports the cure of a most obstinate case in fourteen days.

A NEW AND SAFE METHOD OF CUTTING ŒSOPHAGEAL STRICTURES.

Abbe (*New York Medical Record*, vol. xliii., No. 8, 1893) states that dense cicatricial contractions of the œsophagus following burns by caustics or acids are usually located in the upper and lower segments of the tube, and that the symptoms from obstruction do not come on for many weeks or months after the accident. Hence when the surgeon is called in there is usually an extreme degree of narrowing, the treatment of which by dilatation with small-pointed bougies is often not only a matter of great difficulty, but fraught with grave danger of rupture through the soft and di-

lated wall of the tube above the site of trouble. Moreover, there comes a time when a small quantity of milk can pass through, but the strictures are utterly impassable to even the smallest whalebone bougies. In such cases the dense cicatricial tissue can be split through an œsophageal opening, or the stricture may be divided within by passing a concealed knife on a flexible stem from the mouth down to the seat of trouble, or the stomach may be opened and bougies or a knife may be passed from below.

External œsophagotomy can apply only to strictures high up in the neck. An internal œsophagotomy is much more dangerous. The œsophagus is in close proximity to the aorta, the trachea, the thyroid artery, the recurrent laryngeal nerve, and many large veins. The exact thickness of the dense cicatrix cannot be calculated, and a knife which may be exposed to divide only two millimetres may cut through to the cellular layer outside the tube and divide one of the vital parts just mentioned.

Accumulated experience makes it seem probable that in the majority of œsophageal strictures, low down, which will not admit of even the smallest bougie entering from above, it is possible to enter the opening from below through a gastric incision. This is due to the fact that the œsophagus above the narrow stricture has become dilated by reason of the constant weight of food pressing to get through it, and has ceased to be funnel-shaped enough to direct the bougie aright, while viewed from below the canal is still funnel-shaped.

Even if a fine bougie can be made to enter, it is not practical or safe to stretch many of the dense strictures by the approach through the stomach, and either the patient must be nourished permanently through the gastric fistula, or the dangerous cutting operation must be performed.

To obviate the risks of internal œsophagotomy in tough and extensive strictures, Abbe advocates cutting with a string, the tissues being made tense by dilating with a bougie at the time. The principle involved is a commonly experienced one, that even a blunt object like a string, if drawn across a tense tissue, will cause a cut to occur which would not take place if the tissue were flabby. Experience has shown that if the dilatation has been carried to its utmost limit by a small conical bougie, when a string previously passed through the stricture was drawn back and forth, the dilating bougie could be rapidly advanced where before it had come to a stand-still in spite of any legitimate force that had been used. This advance was made with the loss of only a few drops of blood and with such rapid strides that in the case treated only four bougies were needed to enlarge the stricture from the size of the smallest to that of the largest the normal œsophagus would bear.

The patient on whom this operation was tried swallowed half a glass of strongest ammonia. In a year signs of obstruction appeared, and the patient lost fifty pounds. This obstruction was thirteen and a half inches from her teeth. External œsophagotomy was performed. An attempt was made to dilate the stricture through this opening, but without success. The usual gastrostomy incision was then made. A small conical gum-elastic bougie was passed from below, and was drawn through the wound in the neck. The lower end of the narrowing was two and a half inches from the stomach. Further dilatation was not practicable on account of the density of the stricture. The conical end of the bougie was tightly wedged in the stricture, the string was then pulled upward at the neck, when the stricture was felt to yield, and the dilator advanced through the mass. Three large bougies were consecutively passed, and each was tightly crowded in while the string was seesawed back and forth. After dilatation a rubber tube the size of the finger was drawn into the œsophagus higher than the stricture and left *in situ*, the lower end coming out of the gastrostomy wound, thus giving the patient a chance to frequently rinse her mouth and throat with ice-water, which, when she swallowed, poured out of the tube below.

Nutritious food was meanwhile regularly placed in the stomach by another tube. Uninterrupted recovery took place. In a week she was again etherized, and the free dilatation was repeated, the string serving to assist a still larger bougie to pass as readily as before. This has since been passed without anæsthesia from the mouth to the stomach, and the string has been permanently removed. In two weeks the œsophageal fistula in the neck closed spontaneously. Dilatation was carried on from the mouth downward. The gastric fistula was secured against leaking by a Von Hacker's double rubber balloon, and the patient allowed to eat everything. Eight weeks after the gastrostomy the stomach was dissected from the abdominal wall, the fistulous aperture, nearly two inches in length, was inverted and secured by a first row of continuous Lembert sutures of fine silk and one of Halsted's interrupted quilted sutures outside of this. The sutured stomach-wall was dropped into the abdomen, and the external wound closed with silk-worm gut. Convalescence was perfect. The largest bougie

now passes with perfect freedom, and its use will be continued by the patient for a year or two.

RESECTION OF THE LIVER.

SCHMIDT (*Deutsche Med. Woch.*, No. 8, 1893) reports a successful case of extirpation of a gummatous portion of the liver, preceding his report by an imperfect review of the literature of the subject, apparently founded on Keen's paper, to which due credit is not given. The patient whom he treated was thirty-seven years of age, of a phthisical family history. She had lost a great deal of weight, became cachectic, and passed blood by the bowel.

Four weeks before presenting herself she noticed a movable tumor in the belly the size of an egg. On examination this tumor was readily outlined about the level of the umbilicus, moving with the diaphragm, and passing into the hypochondriac region or the right lumbar region. It evidently lay in front of the intestines. It was supposed to be connected with the transverse colon, and abdominal section was performed for its removal.

On opening the belly the growth was found attached to the lower quadrant of the left lobe of the liver. It was somewhat lobulated, and was harder than normal liver-substance. It was not adherent to any of the surrounding parts. No other nodules were found in the liver. The tumor was brought out through the abdominal wound, the peritoneum surrounding its base was secured by a circular stitch to the parietal peritoneum, and the base of the neoplasm was surrounded by an elastic ligature, and was cut through. Four arteries and six veins were ligatured, and a point of oozing was touched with the thermo-cautery. The extra-peritoneal position of the wound was secured by a second row of sutures, including the skin and walls of the liver, and the dressing was completed by iodoform-gauze packing. Microscopic examination proved the growth to be a gumma.

The patient recovered without complications.

USE OF LACTIC FERMENTATION IN THE BLADDER AS AN ANTISEPTIC APPLICATION IN CASES OF AMMONIACAL COMPLICATIONS OF THE URINE, AND THE TREATMENT OF PUTREFACTIVE WOUNDS AND SORES.

ROBERTS (*Lancet*, No. 3626, 1893) was consulted by a patient who five years before was treated by lithotrity. The patient was compelled to employ the catheter for the complete evacuation of his bladder, at first twice a day, and for the last two years once a day.

At the time of examination there was very little irritation of the urinary passages, and the patient was required to relieve the bladder only once during the night. Examination of the urine showed that it was turbid, intensely acid, and contained sugar. Microscopic examination showed micrococci and bacilli resembling those seen in souring milk, and also toruli having the characteristic appearance of yeast-cells. There was also pus and a trace of albumin. The patient complained of none of the usual symptoms of diabetes. A remarkable feature of the case was the maintenance of a sharply-acid reaction of the urine and the absence of recurrent formation of phosphatic concretions in the bladder. The conditions in this case were peculiarly favorable for ammoniacal decomposition and the formation of phosphatic concretions, yet neither of these affections supervened. The explanation of this, Roberts holds, is to be found in the saccharine urine, which favors acid fermentation. In the case noted three fermentations tending to acidity appeared to be going on concurrently. The chief of these was the lactic fermentation, and lactic acid was identified as the main cause of the intense acidity of the urine. The second was the alcoholic fermentation engendered by the yeast-cells, which were always present in the patient's urine. The third was the acetic fermentation, for acetic acid was clearly demonstrated in the distillate from the urine. Roberts states that it is quite certain that if at some future time the patient ceases to be glycosuric, and still continues the use of the catheter in a careless way, the urine would in no long time be in the grip of the ammoniacal fermentation, and there would then be danger of the formation of phosphatic concretions in the bladder.

This case suggests that lactic fermentation might be turned to therapeutic uses. This agent might be tried in intractable cystitis from ammoniacal decomposition of the urine and in recurrent phosphatic formations after operations for stone. The mischief in these cases is contingent on the establishment of the ammoniacal fermentation in the bladder, whereby urea is changed into carbonate of ammonia. This change, if it goes far, renders the urine irritating to the mucous membrane and provokes cystitis; it also imparts an alkaline reaction to the urine, with consequent precipitation of the mixed phosphates. If a coun-

ter-fermentation of the lactic type could be maintained, the irritating quality of the urine would be diminished, its acidity would be restored, and the further decomposition of phosphates would be prevented. Attempts in this direction might be made by injecting into the bladder a saccharine solution which was in process of lactic fermentation. For this purpose malt extracts are probably the best available means. An ounce of such an extract might be injected once, twice, or thrice a day into the empty bladder, and retained as long as possible. A course of treatment of this kind continued for a week or two would probably give the lactic fermentation the upper hand, and even enable it, for a time, at least, to maintain its supremacy after the saccharine injections had been discontinued, for it has been observed that organisms of the lactic type multiply freely in non-saccharine urine, and their presence appears to protect the urine to an important degree against the invasion and development of the ammoniacal fermentation. When the urine is strongly ammoniacal it would be necessary, as a preliminary step, to irrigate the bladder with an acid solution in order to abate the ammoniacal reaction, because it has been found experimentally that the lactic fermentations cannot proceed in the presence of a high percentage of carbonate of ammonia. For this purpose a solution containing ten grains of citric acid in a pint of warm water may be safely used. Two or three pints of such a solution passed through the bladder would be sufficient to prepare the viscus for the reception of the diluted malt extract, and so render the development of the lactic fermentation within it possible.

The employment of the lactic fermentation as an antiseptic agent in the treatment of unhealthy wounds and sores was suggested by the behavior of putrescible substances with diluted malt extracts. Pieces of meat immersed in water containing five to ten per cent. of malt extract did not undergo putrefactive changes. The mixture passed forthwith into lactic fermentation, and more remotely into alcoholic fermentation. Moreover, when pieces of meat were first allowed to become more or less putrid, and were then treated (in the warm chamber) with daily-renewed dressings of diluted malt extract, the putrefactive process was speedily arrested. In twenty-four hours the reaction changed from alkaline (ammoniacal) to acid, and in two or three days the putrescent odor entirely disappeared. Corresponding results were obtained with pus and blood. The inference from the experiments was that if fetid wounds, sores, sinuses, and abscesses were treated in a similar manner, their condition would in a few days undergo a salutary change,—a change tending to promote the healing process and to diminish the risk of septic infection.

In some cases and conditions the antiseptic method is no longer practicable; fermentations of a putrefactive type have already become so firmly established that they cannot be suppressed by any direct antiseptic means. In some of these cases a counter-septic, or metaseptic, method might prove serviceable. The principle of such a method is easily understood. It consists in an endeavor to overcome and supplant a fermentation which has noxious products by a rival fermentation whose products are not noxious. So far as is known the poisonous animal alkaloids (ptomaines) and albumoses are all the products of fermentations of azotized substances, whereas the products of fermentations of carbohydrate substances are innocuous.

NEURALGIA OF THE BRACHIAL PLEXUS TREATED BY EXCISION OF AN OSTEOMA OF THE FIRST RIB, AND SUBSEQUENTLY BY APPLICATION OF COCAINE.

VERNEUIL (*Annales d' Orthopédie*, tome vi., 7 année, No. 2, 1893) reports a case presenting a small tumor in the supra-clavicular region and suffering from violent neuralgia along the distribution of the brachial plexus. The tumor was found to be connected with the first rib. An incision two and a half inches long was made, the cords of the brachial plexus were swept aside, and the tumor was chiselled free from the rib. Excepting for a slight pleurisy, the patient's recovery was quite uninterrupted. He was entirely relieved of his pain. Four months later pains recurred, and a bony tumor was noted in practically the same position. This was resected, and the patient remained well for seven years; the pains then recurred and radiated not only down the arm, but to the neck and cardiac region. Incision into the old cicatrix showed a dense fibroid tissue which compressed some of the nerves of the brachial plexus. This was dissected away, but the operation was not followed by any marked improvement. A new incision was made through the skin and a five-per-cent. solution of cocaine was applied directly to the apparent seat of the radiating pains. These applications were kept up for some days. The pain then disappeared and has not returned for many months.

TREATMENT OF SPINA BIFIDA.

ROCHET (*Annales d' Orthopédie*, tome vi., 7 année, No. 2, 1893) operated on a child of three and a half years, suffering from a cervico-dorsal spina bifida the size of a small orange. The laminæ of the first and second dorsal vertebræ were absent. The tumor was first punctured; later, Rochet made a vertical incision four inches long, opened the sac, and allowed its contained liquid to escape. The sac was dissected free to the bony opening and was resected.

Rochet rejected Berger's method of closing the gap fully by bone-plates taken from a rabbit, and adopted the procedure advised by Dollinger and Senenko. On each side of the bony defect the muscles were dissected free and the vertebral arches were exposed. These were fractured, and rendered sufficiently mobile to be brought together so that the defect was covered, and were kept in place by buried sutures. On the eighth day a serous fistula was established which persisted for fifteen days. Cure was finally accomplished.

Billroth treated a child of eight years, suffering from spina bifida of the sacral region. The sac was opened by an elliptical incision. The nerves were dissected free from the sac and reduced within the vertebral canal. The bony defect at the third sacral vertebra allowed the finger to be inserted. The sac was extirpated, and the incision was carried upward to the right iliac crest, from which a bony fragment—more than one inch long and four-fifths of an inch wide and two-fifths of an inch thick—was taken. This fragment, still adherent to the soft parts, was fitted into the congenital defect, the borders of the latter being freshened, and was there sutured. Two months later complete consolidation had taken place.

TREATMENT OF COXALGIA.

JULIEN (*Annales d' Orthopédie*, tome vi , 7 année, No. 2, 1893) states that of the two thousand patients who came to his orthopædic clinics from 1888 to 1891, one hundred and twenty, or six per cent., suffered from coxalgia. Eighty-eight per cent. of these were of tuberculous origin. In the early stages but two methods of treatment were employed,—namely, the continued extension and immobilization. The question as to whether extension allows of separation of articular surfaces must still be considered *sub judice*. The researches of Poschen, Schultze, Morosoff, and others upon the cadaver showed that a weight of about forty-five pounds is necessary to cause separation of the articular surfaces one-fifteenth of an inch. It is possible, however, that continued extension is especially serviceable as a means of immobilization.

Julien believes that immobilization is better secured by apparatus, since thus extension can also be obtained and the child can be more readily cared for, can be taken into the air, etc. When contractures are encountered, Julien reduces them by means of extension, aided by manual efforts at restoration to the normal position and the application of plaster dressings, while extension is kept up by the hands of assistants. Thus he avoids tenotomies, myotomies, osteotomies, etc.

When abscesses develop, their cavities are thoroughly curetted and the wound is closed. Julien insists upon conservative treatment of these cases. He does not believe in resection on account of abscesses, or fistulæ, or flexion of the joint, or contracture. In spite of these complications it is possible to obtain a better ultimate result than when resection is practised. He advises resection when acute œdema and elevation of temperature are not relieved by fixation of the joint, when the treatment of secondary abscesses of the pelvis necessitates resection and trephining, when fistulæ are accompanied by fever, which is not lessened by antiseptic treatment.

Resection in cases of coxalgia is only considered when its performance is necessary to save life. Measurements have shown that there is less arrest in development of the leg after coxalgia than after white swelling of the knee.

THE ANTISEPTIC MANAGEMENT OF WOUNDS.

SIR JOSEPH LISTER (*Lancet*, Nos. 3624 and 3625, 1893), continuing his observations upon the subject of the antiseptic treatment of wounds, states that, in the absence of chemical antiseptics, sponges and silk for ligature must be well boiled. All instruments which will stand this process must be purified in the same way. In washing sponges boiled water is to be preferred, but unboiled water, if free from floating particles, would not be very likely to cause mischief. Towels dipped in boiled water and spread about the seat of operation will diminish the chance of contamination of the wound from surrounding objects. Then thorough cleanliness in the ordinary sense, by the free use of soap and water, must be practised for the hands of the surgeon and his assistants and for the skin of the part operated

on. For sutures under these imperfect antiseptic arrangements, materials incapable of absorbing putrescible liquids—silver wire, silkworm gut, or horsehair—should be used.

For dressing the wound, in the absence of chemical antiseptics, dry substances—such as absorbent cotton-wool or old linen—are better than moist dressings.

Iodoform exercises a powerful antiseptic influence upon wounds, though if dusted upon the surface of nutrient gelatin, growth will take place from the micro-organisms contained in the iodoform powder. The beneficial effects of this drug are due to the changes which it produces in the toxic products of the bacteria. In circumstances where it is impossible to exclude septic agencies, as in operations upon the mouth or upon the rectum, or when putrid sinuses are present, iodoform is of very high value. Before applying this drug, the cut surface is to be mopped with a solution of chloride of zinc, forty grains to the ounce. This in itself has a remarkable power of retarding septic changes in wounds in the presence of contaminating materials. On the field of battle, iodoform is probably the best means at present at our disposal.

In the treatment of compound fractures, whilst we endeavor to purify the wound with strong carbolic lotion, we cannot be certain of entire success in this respect. In operations performed where the integument is unbroken, with a sufficient space around for the application of a dressing, iodoform should not be used, since it affords no security against the penetration of septic microbes to the outlet of the wound.

Lister states that the dressing, to be ideally perfect, should contain a trustworthy antiseptic which is not so soluble that it is washed out by serous discharges, which is not irritating, and moreover such a dressing should freely absorb wound discharges. He still holds to the belief that the most satisfactory agent as an antiseptic ingredient of the dressing is the double cyanide of mercury and zinc. This salt is very little soluble in blood-serum, requiring between two thousand and three thousand parts to dissolve it; thus a small quantity of it will last a long time in spite of a free discharge flowing through it. It is at the same time practically unirritating; wounds heal under its immediate contact without the necessity for a protective layer interposed. As to its antiseptic value, though the quantity the serum dissolves is small, it is amply sufficient to prevent the development of bacteria. An experimental research showed that in serum containing one-ten-thousandth part of this double salt putrefaction was prevented for ten days.

It is claimed that this drug, when mixed with corpuscles and serum, is more potent as a germicide than any other. The double cyanide of mercury and zinc is much more powerful as an inhibiter than as a germicide, hence there can be no security that materials charged with this powder may not contain living organisms. In order to guard against this risk the gauze is treated before using it with a reliable germicide. That which is now preferred is a 1 to 20 solution of carbolic acid, which, besides being thoroughly effective, has the further advantage that it soon evaporates from the dressing and leaves nothing in contact with the wound but the unirritating double cyanide and cotton fabric.

Formerly Lister employed a 1 to 4000 bichloride solution to moisten his dressing, but since it has been shown that the antiseptic power of the bichloride is almost entirely lost as soon as it comes in contact with the cyanide of mercury and zinc, producing a curious soluble triple compound which is slightly antiseptic and highly irritating, he has employed the carbolic lotion. The gauze is not wet, but simply damp. The double cyanide, if used pure, is liable to dust out of the gauze on the slightest touch and is extremely irritating to the nostrils. To avoid this certain dyes were incorporated with the double cyanide, these having the power of attaching the latter to the fabric. Hæmatoxylin was at first used, but lately Lister has employed purified rosolane. For charging gauze the double cyanide is diffused with pestle and mortar in a 1 to 20 solution of carbolic acid, in the proportion of about thirty grains to a pint; and the gauze, which must be of thoroughly absorbent quality, is drawn, in a thickness of about eight layers, through the liquid, which is conveniently placed in a trough having a bar near its lower part, beneath which the gauze is made to pass, care being taken that the liquid is kept perpetually stirred to prevent precipitation of the salt. The gauze is then hung up to dry at the temperature of the air. Carbolic lotion is used in preference to water, both because the powder is very much easier diffused in it and because it is desirable that any dirty material which the gauze may happen to contain may be sterilized. This gauze is taken down before it is thoroughly dried and wrapped in mackintosh. This dressing may be prepared at a few minutes' notice for emergency or in private practice. The unprepared gauze is folded in eight layers, is thoroughly soaked in a 1 to 20 carbolic lotion, and is dusted with the

double cyanide powder. The gauze is then rolled together and thoroughly kneaded. This produces a sufficiently uniform diffusion of the salt throughout the mass. If gauze is not at hand, linen rags or towels may be used, and bandages which are applied directly to the wound may be rendered antiseptic in a similar manner. A good antiseptic paste may be made by mixing double cyanide powder with a 1 to 20 carbolic lotion until a soft mud or cream is formed. This may be brushed upon the parts where there is very little space between the wound and some source of contamination. The antiseptic salt on the skin surface prevents the microbes from working their way into the wound under the narrow strip of dressing alone available. This double cyanide cream may also be applied to the hairy parts, thus converting them into a part of the antiseptic dressing. In changing dressings it should be an invariable rule to cover the wound with something thoroughly antiseptic before washing surrounding impure parts. For these washings a 1 to 40 carbolic lotion will be found most serviceable. When discharge is free, the first dressing is removed in twenty-four hours.

OPERATION FOR CEREBRAL TUMOR.

CLEGHORN (*New Zealand Medical Journal*, No. 1, vol. vi., 1893) operated upon a woman, aged twenty-six, who presented symptoms which justified a diagnosis of lesion of the right motor area, probably single, though evanescent right-eye ptosis and slight right-ankle clonus suggested the possibility of multiple lesions. The nature of the spasms suggested that the lesion was probably subcortical, and other symptoms pointed to its being tubercular in origin.

The patient was prepared for operation as usual, and an india-rubber band was drawn tightly round the skull to arrest hemorrhage. The fissure of Rolando was mapped out on the scalp by Reid's lines, and the bone was marked by a drill driven through the scalp at upper point of fissure of Rolando, and at a point two inches lower down along the fissure, before the scalp was raised. A three-quarter-inch trephine was used. The disks of bone were placed in a warm (1 to 60) carbolic solution, which was kept at body heat till the pieces were required. In the first operation one disk of bone was not replaced, in order to leave an exit for drainage, but in the other operations the disks and fragments were replaced, and no drainage was attempted. In each case, after the cortex was incised and some of the softened brain-tissue removed, pulsation became marked, and could be noticed for some days after the operation.

At the time of the first operation a disk of bone was removed one and one-half inches down the fissure of Rolando, and three other disks were removed from around this first point. The dura bulged into the opening, but did not pulsate. It was incised, and the cortex bulged through the opening. The cortex was incised, the opening was enlarged by sinus forceps, and the finger was passed into a cavity filled with softened brain-tissue, extending two inches towards centre of brain, nearly to the falx, and for two inches from there towards the right border, where it was not more than one inch in depth. A quantity of brain-tissue sufficient to fill a dessertspoon was removed from this cavity by scraping with the finger, by small pieces of sponge held in forceps, and by washing with warm water. Two vessels were ligatured with fine catgut, the edges of the dura were brought together, a small opening being left under the centre of the disk first removed—which was not replaced—for an india-rubber drainage-tube, which was brought through the scalp, through an opening made directly over the dural aperture. The other three disks of bone were replaced, and the edges of the incision in the scalp were united with silk sutures; a drainage-tube was inserted at either angle of the scalp wound, and a copious cyanide gauze dressing was kept in place by a flannel bandage, applied over the scalp.

There was improvement for a month, then the patient's condition became worse, and epileptiform seizures occurred.

The second operation was performed two and a half months after the first. The replaced disks were firmly united to one another and to the skull. The scalp was dissected from a hernia cerebri, which was found to completely fill the opening left by the removed disk. This was transfixed, ligatured by catgut, and removed. The finger passed into the same cavity in the brain, which was again scraped and washed out.

Four months after the second operation a third was necessary. A disk of bone was removed with the larger trephine above and behind the highest disk removed at the first operation, one-third of it being to the left of the median line, though the extreme edge was half an inch to the right of the sagittal suture, which was quite one inch to the left of the median line. The dura was tense and did not pulsate. A spot beneath the centre of this disk was raised by Adams's eye-hook and in-

cised with the point of a scalpel. Venous blood flowed freely, and a probe passed through the opening was found to be in the longitudinal sinus. Later on, when the dura was opened lower down, this point was found to lie immediately over the falx. The same cavity found in former operations still existed. It was explored by the finger, and was again filled with softened brain-tissue. This was treated in the same way, the dura was sewed up, the disks of bone replaced, and the edges of the scalp incision brought together, no drainage being employed. There was great temporary amelioration, but a month later she suffered from epileptiform fits.

A second case—a boy, aged nine years—suffered from epilepsy, apparently due to cortical irritation. Four disks of bone were removed, including the star-shaped piece lying between the four circles. A cavity filled with softened brain-tissue was found. This was cleared out, the pieces of bone then replaced, and the wound closed without drainage. Four months later the patient appeared to be in good condition, and did not suffer from return of fits.

Microscopic examination of the specimens showed that the first was probably a cysto-sarcoma, the second a broken-down blood-clot.

THE TREATMENT OF PYÆMIC THROMBOSIS OF THE LATERAL SINUS.

PRITCHARD (*Lancet*, No. 3627, 1893) holds that instances in which pyæmic thrombosis of the lateral sinus have been successfully treated should be placed on record, since thus the operation is encouraged and knowledge is spread as to the symptoms which indicate such operations. The objects to be obtained by operation are removal of the source of infection and blocking of the main route by which anything from the infected parts would enter the general circulation.

In the case reported there was no recent discharge, and there was caseating pus in the mastoid process. The membrana tympani was not perforated, there was no œdema over the mastoid process, nor could optic neuritis be found on examination with the ophthalmoscope.

A girl, aged thirteen, gave a history of purulent discharge from her ear during infancy and early childhood; it had not been noticed for several years. Eight days before treatment, without obvious cause, she complained of earache and headache on the left side, with pain in the upper part of the neck on the same side, on movement. These pains gradually increased in severity, became constant and agonizing, and prevented sleep. Vomiting was an early and distressing symptom. She suffered from rigors, sometimes two or three a day, and twitchings of the right leg were said to have been noticed during sleep. Pressure behind the ear caused moderate pain, and there was marked tenderness of the upper part of the neck. On account of the severity of the symptoms, operation was decided upon. A two-inch incision was made one-fourth of an inch behind the pinna of the left ear; the periosteum was detached, and the mastoid antrum was opened by means of the chisel and mallet. On the first introduction of the chisel into the antrum gas bubbled out with the blood. The opening thus made was enlarged, during which process a few streaks of thick pus came away, but there was no distinct evacuation of any collection. Scraping with a sharp spoon only removed old cheesy pus without offensive odor, and it was thought that so far the cause of the severe symptoms had not been revealed. It was then determined to explore the lateral sinus. An incision was made backward from and at right angles to the preliminary cut. The opening in the skull was enlarged upward, backward, and downward. More cheesy matter was scraped away, and, as the dura mater covering the temporo-sphenoidal lobe bulged considerably into the upper part of the aperture, this membrane was opened and a carefully-purified exploratory needle was passed into the brain-substance in search of pus, but with no result; the incision into the dura was then united with a fine catgut suture. After a little more chiselling the lateral sinus was completely exposed, and was explored by means of a hypodermic needle, but neither blood nor pus could be drawn up. On withdrawing the needle, however, it was found to have a very offensive odor. The outer wall of the sinus was next opened by a longitudinal incision, and on scraping out the contents fetid gas bubbled up. A probe was thrust upward towards the torcular Herophili and downward towards the internal jugular vein, but no blood could be made to flow, and on withdrawal the probe had a most offensive odor. The next step was the ligation of the internal jugular vein, and an incision was made from the angle of the jaw to the cricoid cartilage; but, on account of the matting together of the enlarged and inflamed glands, this incision had subsequently to be enlarged. The vein, when exposed, appeared to be collapsed; it was tied in two places and divided between the ligatures. The lateral sinus was again scraped with a sharp spoon and syringed out with a solution of per-

chloride of mercury (1 in 3000), in the hope that by these means the original source of infection could be removed. Three days later, on account of the rise in temperature, the opening in the skull was enlarged, particularly in the backward direction, the lateral sinus was further exposed and cleared of its clotted contents by means of a sharp spoon, and the outer wall was entirely removed, so that the sinus was practically obliterated. The upper end of the sinus was allowed to bleed for a few seconds in order to clear away the remaining offensive clots; hemorrhage was easily controlled by light pressure. The wound in the neck was then reopened, and the internal jugular vein dissected out as far as possible in the direction of the skull. A solution of perchloride of mercury (1 in 2000) was syringed from the remains of the sinus through the remnant of the internal jugular vein into the wound in the neck; much offensive clot came away during this process. The wound in the neck was sutured and a cyanide gauze dressing was applied.

The convalescence of this child was practically uneventful.

THE RATIONAL TREATMENT OF BUBO.

LYDSTON (*Times and Register*, vol. xxvi., No. 10) states that the treatment of bubo varies in accordance with the stage in which it is first seen. Thus, certain means are adapted for the prophylaxis of bubo. Other means are applicable before there is distinct abscess formation; when pus is clearly formed special treatment will be required. The prophylaxis of bubo lies in thorough cauterization of the chancroid, the avoidance of irritants, and the maintenance of as complete rest as practicable in all urethral or genital lesions.

The ideal prophylaxis of pus-formation is the early and effective extirpation of the affected glands.

Lydston holds that it is the duty of the surgeon to extirpate the glands in every case in which distinct enlargement occurs and persists for several days in spite of rest and poulticing.

Foci of suppuration form in the affected glands very early. They are at first chiefly at the periphery, and the likelihood of infection of the periglandular tissues is correspondingly greater. Once these tissues are invaded the prevention of annoying and persisting suppuration is extremely difficult. In by far the large majority of cases suppuration has really occurred within a week of the onset of the bubo, even in the less fulminant varieties. Sometimes absorption may occur, but this is rare, and not to be desired. Though the glands may not suppurate, they are a perpetual source of annoyance and anxiety, for they do not readily go back to their normal state. In most cases after early excision of the glands healing is primary and prompt, and when it is not so it is because operation has not been resorted to promptly. Even though primary union does not take place, healing is quicker than in cases operated on later, for all of the originally infected tissues have been removed, and there are no glandular remnants to perpetuate suppuration.

When suppuration has actually taken place and periadenitis exists, free incision and curetting is demanded. If the bubo is non-virulent, suturing is justifiable if due antisepsis be observed. Virulent bubo in full suppuration requires thorough cleansing with peroxide of hydrogen; cauterization with pure bromine or carbolic acid. When granulation is well advanced, secondary suturing is admissible. For dressing granulating buboes balsam of Peru is advisable.

TREATMENT OF BLADDER TUMORS.

BAZY (*Revue de Thérapeutique Médico-Chirurgicale*, 60 année, No. 5, 1893) summarizes the treatment of bladder tumors as follows: All tumors of the bladder are removable, and in the large proportion of cases operation should be undertaken. Indications are pain, frequent urination, hæmaturia, retention of urine. Either palliative or curative operation can be performed. Palliative operation consists in the formation of an artificial opening into the bladder. The best approach to the seat of trouble is by the hypogastric incision. The best operation consists in total excision of the tumor by means of a knife. This is practicable in whatever position the neoplasm is found. It is never necessary to perform symphyseotomy, or in other ways interfere with the integrity of the pelvic girdle.

Section of one or both recti muscles is sufficient. The inverted position may greatly facilitate operation, but is not necessary. Suture of the wound, necessitated by ablation of the neoplasm, should be performed whenever this is possible. When the tumor is placed at or about the orifice of the ureter complete closure of the wound will not be practicable. Suture of the bladder wall is recommended whenever this can be carried out.

THE TREATMENT OF HEMORRHOIDS BY THE CLAMP AND THERMO-CAUTERY.

SMITH (*Lancet*, No. 3627, 1893) states that for many years he has not had a single case of blood-poisoning, hemorrhage, or any serious complication after an operation on hemorrhoids, nor have there been any instances of cicatricial contraction sufficiently marked to interfere with function. The author is a firm believer in the clamp and cautery. Formerly he seized the pile with the clamp, trimmed away the redundant tissues with the scissors, then cauterized the base. In some few cases moderate hemorrhage occurred when the bowels were first opened. Laterally he has employed cautery blades with serrated edges, heated to a dull-red heat. If the piles are divided by means of such blades, every vessel must of necessity be acted on by the cautery, and the laceration produced by the serrated edges acts as an additional safeguard against bleeding.

Another improvement adopted of late years is the thorough dilatation of the sphincter previous to operation. Care must be taken to avoid actual rupture of the fibres, since incontinence may result. Dilatation of the sphincter, however, greatly facilitates operation, and lessens, or even quite abolishes, after-pain. When the patient suffers after operation, the best local remedy for its relief is the constant application of very hot water by means of a small sponge. In patients operated on in this way constitutional disturbance is usually so slight that it is difficult to persuade them that it is needful to remain in bed for a few days.

THE SUBCUTANEOUS USE OF DOSES OF SUBLIMATE IN THE TREATMENT OF SYPHILIS.

HOROVITZ (*Centralblatt für de Gesammte Therapie*, 11 Jahrgang, 1893) holds that all mercuric treatment of syphilis should aim at as thorough saturation of the tissues with the drug as is possible without the appearance of toxic symptoms. Moreover, this saturation should be brought about as rapidly as possible, and the drug should be so administered that eliminative processes cannot carry it entirely out of the system. These indications he holds are best fulfilled by the use of hypodermic injections of soluble preparations of mercury. The criticism which is maintained against the use of soluble preparations is that they are so quickly absorbed into the system that no quantity is left in the tissue from which fresh absorption can take place as elimination progresses. Hence such injections must be frequently repeated. Experience with one case, however, showed that this objection to the use of soluble preparations of mercury does not hold. The case was treated with one-half-per-cent. sublimate injections, repeated every third day until twenty-four treatments were applied. Nevertheless, surface manifestations appeared, requiring a new course of injection treatment. In the beginning of this new course acute inflammation developed at the seat of injection; this was followed by marked salivation. This subsided on the fifth day, as did likewise the skin manifestation of syphilis. Since this patient had shown no undue reaction to the first course of injections, the question is most interesting as to why salivation should occur immediately after the institution of a second course. This was evidently owing to the fact that the indurated area remaining after the first course of injections was practically a depot for mercury, from which rapid absorption took place consequent upon inflammation excited by the beginning of the second course of injections. As a result of this rapid absorption, lesions were cured and some toxic symptoms were manifested.

This case naturally led the author to conclude that the hypothesis as to rapid and easy absorption of soluble preparations of mercury was not founded upon fact, and that necessarily stronger solutions of sublimate should be employed in the injection treatment; thus would be formed a deposit of mercury at the site of injection, even if soluble preparations are used, from which absorption would be relatively slow, though perhaps not so slow as when insoluble preparations are used.

In the next patients a three-per-cent. solution of perchloride of mercury was used. These injections were well borne. No intoxication symptoms developed when the injections were repeated every fourth or fifth day, nor was the inflammation at the spot of application more marked than when weak solutions were employed.

Lukasiewicz coincides with Horovitz in his opinion as to the soluble preparations of mercury. He uses five-per-cent. solutions, and obtains very excellent results. The author no longer uses sodium chloride in the preparation of his solutions, but adds an equal quantity of absolute alcohol to the water. This makes a less painful injection liquid than the old salt-and-water solution.

Reviews.

HAND-BOOK OF MATERIA MEDICA, PHARMACY, AND THERAPEUTICS, INCLUDING THE PHYSIOLOGICAL ACTION OF DRUGS, THE SPECIAL THERAPEUTICS OF DISEASE, OFFICIAL AND PRACTICAL PHARMACY, AND MINUTE DIRECTIONS FOR PRESCRIPTION-WRITING. By Samuel O. L. Potter, A.M., M.D., M.R.C.P. (Lond.). Fourth edition. Revised.
Philadelphia: P. Blakiston, Son & Co., 1893.

As will be seen from the title of this work, the author has undertaken rather a difficult task to combine in one volume, and that of convenient size for a text-book, the study of materia medica, pharmacy, prescription-writing, and therapeutics. He has also added an appendix, with bits of information from the various collateral branches of medicine. The author might have reflected credit upon himself had he done full justice to any one of the above subjects, but in attempting so much no one subject has been fully considered. Within the seven hundred pages there is contained much valuable information, recent text-books upon therapeutics having been most freely drawn upon.

The arrangement of text-books so that the matter may be easily comprehended and assimilated is of the greatest importance to the student, but the author seems to have paid little attention to this important detail.

Part I. is devoted to materia medica and therapeutics. The drugs, both official and officinal, are alphabetically arranged, beginning with arbus and ending with zingiber. After the official and English name of each drug, the description, constituents, preparations with doses, general physiological action, antagonists and incompatibilities, and therapy are given. Scant description is given to symptoms and treatment of poisoning.

The usual error is made that belladonna and opium are antagonistic in their effect upon the pupil. Too much stress is laid upon "giving undivided attention to respiration in chloroform anæsthesia," as cases of heart-failure preceding respiratory failure are on record.

Part II. takes up the consideration of pharmacy and prescription-writing. There are many good points in this chapter.

Part III.—"Special Therapeutics"—seems to have been written to give volume and weight to the book. There are two hundred and twenty-seven pages devoted to an alphabetical list of diseases, with an alphabetically-arranged list of drugs used in the treatment of each disease. The drugs are not selected as the best by the author, but are quoted from various authorities.

Dr. Potter's work is so good that it can stand much adverse criticism, and any criticism offered is not intended to be carping, but as indicative of points which might be improved.

It deserves the abundant success it has acquired, and will continue to be one of our leading therapeutic guides. E. Q. T.

A MANUAL OF CLINICAL OPHTHALMOLOGY. By Howard F. Hansell, M.D., and James H. Bell, M.D. With one hundred and twenty illustrations.
Philadelphia: P. Blakiston, Son & Co., 1892.

It is not an easy task to condense within a little more than two hundred pages the essential points in the anatomy, physiology, refraction, and common diseases of the eye, and at the same time to present the facts with sufficient clearness that they may be grasped by the undergraduate. This has been the purpose of the authors of this volume, and they are to be congratulated upon the success of their endeavor.

All portions of the book will prove of value to the student and general practitioner, and especially the sections which treat of the anomalies of refraction and of the external ocular muscles. The chromo-lithograph of the normal fundus is excellent, and, indeed, most of the illustrations, which have been judiciously selected, are good reproductions.

The authors would have been more than human had they succeeded in avoiding errors in a first edition; for example, the representation of Priestley Smith's perimeter is credited to McHardy, Dr. Stevens's name is printed "Stephens," and the plural of "cilium" is given as "ciliæ."

Necessarily the authors have been obliged to describe with brevity the treatment of the various ocular disorders, and at times to express themselves dogmatically; but we think it unfortunate that more space has not been devoted to methods of managing the most important conjunctival and corneal inflammations. No doubt this fault will be obviated in a second edition, which, we feel sure, will soon be demanded. Cataract extraction with iridectomy is evidently preferred, but the characterization of simple extraction as both "difficult and dangerous," in the light of modern advances, sounds a little odd. The authors urge that in the simple section a conjunctival flap is to be avoided, a piece of advice which need not be followed; if, for example, Knapp's section is performed, a small, central conjunctival flap is practically always produced, and, as that distinguished author says, if anything,

is an advantage. We are very far from agreeing that transplantation is the best operation for pterygium.

The book will more than repay perusal, and we heartily recommend it to student and practitioner, and to any one who desires to read a brief review of the most important points in practical ophthalmology.

THE INTERNATIONAL CLINICS. A QUARTERLY OF CLINICAL LECTURES. Edited by John M. Keating, M.D., Judson Daland, M.D., J. Mitchell Bruce, M.D., and D. W. Findlay, M.D.
Philadelphia: J. B. Lippincott Company, 1893.

Vol. IV. of the second series of "International Clinics" contains fifty-two lectures by physicians occupying prominent positions in the medical profession in various parts of the world.

An interesting biography of Dr. H. I. Bowditch, of Boston, opens the volume, which is completed by reports of the clinics of such men as James Tyson; A. L. Loomis; Bristowe, of London; Atkinson, of Baltimore; Cary, of Buffalo; Keen, of Philadelphia; Abbe, of New York; and Duhring, of Philadelphia.

As we have said in an earlier issue of the GAZETTE, these clinics are practical, brief summaries by able men of our information at the present day concerning the diseases which they treat.

HISTORY OF THE LIFE OF D. HAYES AGNEW, M.D., LL.D. By J. Howe Adams, M.D.
Philadelphia and London: The F. A. Davis Publishing Company, 1893.

The chief value of this biography of Dr. Agnew rests, it seems to us, in the illustrations which are scattered through the book. In addition to a series of interesting photographs of the subject of the work, showing him as he appeared at different times in his long professional career, there is a picture of the Philadelphia School of Anatomy, where was laid the foundation of the extraordinary reputation which Dr. Agnew acquired. Mention is made of a number of interesting occurrences in his connection with the medical profession as a teacher, and a *fac-simile* of the title-page of the Japanese edition of his celebrated work on surgery is given.

While there is much to commend, both in the spirit and word of this biography, there is also a good deal which those who knew Dr. Agnew best recognize as being distant from his nature and desires. A sketch of his ancestral tree, or any thought concerning his pedigree, excepting that it was respectable, was about as far from Dr. Agnew's mind as any subject which could be thought of; and as he was loved because of himself and not because of his ancestry, we confess to a sense of disappointment that the opening pages of the book should be marred by a discussion of family matters which are in no way interesting to the ordinary reader, and which, as we have said before, are peculiarly foreign to a biography of a man of Dr. Agnew's calibre. Many of the addresses which have been delivered in memory of Dr. Agnew have contained interesting facts concerning him, and this book, of course, contains much that these essays contain.

It is to be hoped that through this book the "Dear Old Man" will continue to improve the tone of the medical profession wherever his students are scattered.

A SYSTEM OF GENITO-URINARY DISEASES, SYPHILOLOGY, AND DERMATOLOGY. By various authors. Edited by Prince A. Morrow, A.M., M.D. With illustrations. In three volumes. Volume I., Genito-Urinary Diseases.
New York: D. Appleton & Co., 1893.

The first of the three volumes of this work on genito-urinary diseases, syphilology, and dermatology amply justifies Dr. Morrow in presenting, in the form of a system, what have been considered special and comparatively unimportant branches of the healing profession.

The contributors to this first volume are all men of note in their special work; thus, Belfield, Tilden Brown, Keyes, Morrow, Otis, White, and Thorndike are familiar names not only to the specialist, but to the general surgeon.

The volume opens with a brief chapter on the anatomy and physiology of the genito-urinary organs. The physiological section of this chapter is not entirely satisfactory; indeed, the whole of this section may be criticised on the ground that it is scarcely comprehensive enough for a work of the scope under discussion. Diseases of the penis are discussed by Ramon Guiteras. In his consideration of abnormalities of the penis, the matter of treatment is scarcely given the attention that it deserves. No extended mention is to be found of indurations of the corpora cavernosa, so admirably described by Mauriac.

Tilden Brown's section on diseases and injuries of the urethra is one of great practical value. The author figures a number of his own instruments and devices, all most ingenious and some superior to any others. His urethroscope,

however, will not be found as satisfactory as those of a different pattern.

Lustgarten, in writing on the etiology of urethritis, reiterates the statement made in a previous paper as to the fact that a pseudo-gonococcus exists which on microscopic examination may simulate true gonococcus in all its reactions. He states that the distinction between a gonorrhœal discharge and the normal secretion of the urethra seems to depend only on the fact that in the first case the gonococci are to be found in greater numbers, and are not accompanied by so many banal micro-organisms.

Brewer writes upon acute urethritis in his characteristic clear, direct style. This forms a valuable chapter, strongly reflecting the author's present views.

William K. Otis treats the subject of chronic gonorrhœa, or gleet, and describes his own urethroscope, by all odds the best yet described. The constant use of the term "tripperfaeden," not only in this particular article, but all through the book, is not to be commended. The literal translation, "clap shreds," or, better still, "pus shreds," would be more satisfactory even to German scholars.

Klotz is well qualified by his studies on this subject to write upon endoscopy. This paper covers the practical points of the subject. Hartley very briefly treats the special subject of gonorrhœal rheumatism. Tuttle contributes an excellent paper upon what might be termed "extra-genital gonorrhœal inflammations." He holds that the rectum, nose, and mouth are subject to the infection of the gonococci.

An admirable paper on stricture of the urethra is contributed by J. William White. The clear, forcible teaching characteristic of this author is apparent throughout the entire chapter.

Belfield, who is perhaps more identified with the surgery of the prostate than any other living surgeon, writes upon diseases of this gland. The pages upon operative treatment of prostatic enlargement are particularly valuable. Bryant, under the heading "Functional Diseases of Micturition," discusses certain symptom-groups in an exceedingly instructive manner. Fuller considers the diagnostic significance of pathological modifications in the urine. This very large subject he disposes of in comparatively few pages, and yet manages to cover all the important points of his subject. Fordyce devotes a space to urinary fever scarcely commensurate with the importance of the subject. He has, however, included everything which is practical and modern. Willy Meyer contributes an admirable and scholarly paper upon cystoscopy. This section is deserving of the highest praise. Alexander devotes about thirty-three pages to the cystites. The section on treatment is particularly to be commended. Fowler writes on wounds of the bladder, including in his subject foreign bodies, malformations and malpositions, and other abnormalities. Stein treats of rupture of the bladder. Watson describes tumors of the bladder, inserting in his article suitable reproductions of Albarran's famous plates. This paper is really a monograph upon the subject. Cabot's article on stone in the bladder is one of the longest and best of the entire series of papers. Stimson considers "Surgical Diseases of the Kidney" in a complete and satisfactory manner. The subject is admirably condensed. Though the mode of writing is somewhat dogmatic, the reader is not confused by presentation of conflicting views without a clear statement of the author's preferences.

Diseases of the scrotum and testicle are treated by Bell, Burnett, Bryson, Wyeth, and Vanarsdale.

The subject of hæmatocele has been somewhat slighted. In discussing the treatment of acute orchitis, this affection is evidently confounded with acute epididymitis. The chapters upon inflammatory diseases of the testicles and epididymes show familiarity with the scholarly treatise of Monod and Terrillon.

Keyes briefly describes his own method of operating upon varicocele; this in his hands has been most successful. Bryson gives a satisfactory résumé of the clinical features; and treatment of tumors of the testicle and hydrocele and spermatocele are systematically studied by Wyeth and Vanarsdale.

Thorndike devotes a chapter to diseases of the seminal vesicles. This is a minor subject, it is true, but one which the author has studied to good purpose, since his paper, brief as it is, is probably the most complete to be found upon the subject.

Morrow writes upon functional disorders of the male sexual organs. This chapter is eminently practical. Special branches of the general subject are treated in a purely scientific spirit, equally free from any trace of vulgarity or of false modesty.

The volume finally closes by a section on gonorrhœa in the female, by Currier. This author states that in the cases of gonorrhœa in women which he has seen, the greater number have come with vaginitis as the most conspicuous symptom; the next in frequency were those who suffered from pelvic peritonitis of gonor-

rhœal origin; fewer in number were those who suffered with urethritis and cystitis. This is not the order of frequency which would be given by the majority of genito-urinary surgeons.

Perhaps the only adverse criticism to be passed upon this work is that it is not encyclopedic, space being devoted to practical teaching rather than scholarly research. This, if it be a fault, is one which will not interfere with the popularity of the system.

THIRTY-NINTH REPORT RELATING TO THE REGISTRY AND RETURN OF BIRTHS, MARRIAGES, AND DEATHS, AND OF DIVORCE IN THE STATE OF RHODE ISLAND FOR THE YEAR ENDING DECEMBER 31, 1891. Prepared by Charles H. Fisher, M.D.

Providence, R.I.: E. L. Freeman & Son, Printers to the State, 1892.

This statistical report upon the records of the vital movements of the population of Rhode Island has a deservedly wide reputation, on account of the accuracy of the compilation and the exceptional fulness with which the records have been kept. In addition to the figures and summaries constituting the bulk of the volume, will be found appendices, one upon nomenclature of diseases or causes of death, another with suggestions concerning physicians' certificates and causes of death; also one upon the laws of Rhode Island in relation to the registration of births, marriages, deaths, and divorces.

The work is exceedingly creditable to its compiler, Dr. Charles H. Fisher, and sets an example which it would be well for all the States to follow on the model of this report.

THE YEAR-BOOK OF TREATMENT FOR 1893. BEING A CRITICAL REVIEW FOR PRACTITIONERS OF MEDICINE AND SURGERY.

Philadelphia: Lea Brothers & Co., 1893.

This year-book of treatment has already become so familiar to the profession in England and America that it is unnecessary to do more than call attention to the publication of the last year's summary. The articles which it contains are necessarily brief, but are very useful condensations of the literature of the therapeutics of the past twelve months. Particularly useful are those articles which are not mere abstracts from journals, but consecutive notes upon given subjects, in which the ideas of the editors, to some extent at least, find representation. The physician who has this book at his hand, with one or two of the other annuals published,—such as the "Medical Annual," published by Treat, and "Braithwaite's Retrospect,"—cannot fail to feel that he is keeping in touch with the best portion of medicine today. There are very few articles of great importance which will not be found in one of these three volumes.

Correspondence.

LONDON.

(From our Special Correspondent.)

St. Bartholomew's.—The Casualty Department.—Last month I devoted myself to the description of one of the special departments. There everything was quiet and orderly, and there was nothing to indicate working at high pressure save the nature of the therapeutic agent employed. This month I intend to describe a far busier scene,—the Casualty Department, as it is called,—the great filter of the hospital through which the multitude of patients have nearly all to pass before finding a haven either in the wards or in one of the many out-patient departments.

I do not suppose it is my duty in these lines to show either approval or disapproval of the system in vogue at St. Bartholomew's. To the great presiders over the charity it may seem very satisfactory to be able to state that during a given year so many tens of thousands, or even hundreds of thousands, of patients were seen; but, of course, this may have an entirely different appearance for the physicians who see this vast mass of suffering humanity, or even for the patients themselves. I may, however, say once for all that, notwithstanding the fact that the casualty physicians often have to see patients at the rate of nearly one hundred and fifty an hour, it seldom happens that any one who is really seriously ill escapes attention, and mistakes of a serious nature are extremely rare. Possibly in the future some improved plan will be discovered for dealing with our sick poor, but until that time arrives the Casualty Department and its officers will continue to do good work.

A hundred and fifty an hour! What a stupendous task! the reader will say. Yet this is no imaginary number, as may be seen almost any morning of the week. How is it done? This I am now going to describe.

The Staff.—The casualty staff consists of three casualty physicians, the junior assistant physician, the junior assistant surgeon, the eight house surgeons, and the four assistant house physicians. Besides these, there is a staff of liveried porters and nurses, and in the "casualty dispensary" a body of attendants to

dispense the more frequently used medicines,—the carminatives, the astringents, the emollients, purgatives, etc.,—which are sent over daily from the hospital apothecary's in great stone jugs. All these officers hardly know a moment's rest from the time the doors open, at 9 A.M. exactly, until the room is cleared of patients, which feat has usually been accomplished by about 11 A.M. Think what a busy scene it must be! According to the report just issued, there were no fewer than 142,745 casualty patients seen during last year. These numbers seem so huge that one is inclined to wonder where so much illness comes from. Of course all are not seriously ill, but it is fair to assume that nearly all are at least indisposed, and some are serious cases, as witness the remaining numbers in the same report, which show that during the year 5953 of these became in-patients and 16,143 out-patients. It is not often that one meets the man described years ago by Dr. Bridges, a former casualty physician. Being asked what was the matter with him, this man "didn't know that he had anything particular the matter with him, but as he was passing the hospital, he thought he might as well come in and have a draught." To such a man probably nothing out of a bottle would come amiss, but I pity him for the dose which the infuriated physician is likely to have given him!

The Room.—To return, however, to my description. The casualty patients are all seen in the "surgery,"—a great hall abutting on West Smithfield, ninety feet long by thirty wide. Rooms open from both sides of this, those on one side being occupied by the medical staff and those on the other side by the surgeons and by students, who constitute their dressers or assistants. The entrance is by two doors in the centre of the Smithfield side, and on the opposite side, facing these, is the dispensary counter. The floor of the hall is divided up by screens, one end being devoted to the women and the other to the male patients, who wait either on forms or standing in file near the rooms in which they will be eventually seen. In this area space is also reserved for the assistant physician and assistant surgeon, who are only on duty on the busiest days of the week.

The Clinic.—At 9 A.M. precisely the doors are opened for the admission of patients,—not widely, but held just open enough to admit one patient to squeeze in at a time. This requires all the care of the porter on guard. Every patient, before being let in, has to answer a crucial question as to what is the matter with him. Having done this satisfactorily,—and it requires almost a special education to get this out of the London pauper patient,—the porter, rightly or wrongly, drafts him to one or other of the physicians or surgeons, having first given him a zinc ticket. If he has been before, and can show a paper to that effect, he is allowed to enter without further question, and makes his way to the benches he previously occupied. It is distinctly amusing to listen to some of the colloquies which take place between porter and patient, and their character throws much light on human nature of a sort. Standing beside one of the casualty physicians, one gets a still better chance, and I know of no better school for the acquisition of the habit of facial diagnosis or for the acquisition of patience in hearing crooked answers.

By about half-past nine there will be something like three or four hundred patients waiting in the hall. About one-third of them will be waiting in single file, the others sitting on the forms, the women discussing and comparing their symptoms and the men silent. At ten exactly the doors are closed and no more are admitted. If one left the room now and returned at about eleven, nearly all these patients would be found to have been disposed of,—either treated outright or referred to one of the other departments. Treated, one must call it, but for what, and how can the diagnosis be made in such a short time? Of course want of time is seriously felt on all sides, not only in the diagnosticating department, but also in the dispensary. Every possible device is employed to save labor; it is, as a rule, found impossible to make any notes of the cases seen, or to give them written prescriptions. The physician having made up his mind whether a patient is really ill or not,—mainly, it must be owned, through his sharpened powers of facial diagnosis, aided by two or three questions (repeated several times, it may be),—gives him a ticket bearing the initial of the mixture he wishes taken, or some other sign which the dispensing staff will recognize. This is taken to the dispensing counter on the opposite side of the room, with a pint bottle or jar, which is then filled out of one of the big stone jugs, and the patient departs. If it is thought necessary that anything more elaborate is required than the simple mixture kept here, the physician has to write out a prescription, which is then taken to the apothecary's shop on the other side of the square. This is, of course, avoided as much as possible, even at the risk of treating a great number of disorders with the same medicine.

The Predominant Ailments and their Remedies.—What is chiefly the matter with this swarm of patients, and how does the system work? It may be said at once that apparently, from a practical point of view, the plan is a good one, for the bulk of the patients come only a few times, perhaps only once, and further evidence of the success of treatment lies also in the unfailing supply of fresh cases from year to year. As to what is the matter with them, the nature of the medicines most in favor will give some indication. That which is used in by far the greater number of cases is the "queen iron," mixture, as they call it, a simple mixture containing ferric chloride and quassia, the taste of which leads the patients to think they are taking quinine, hence their name for it. This seems to do a wonderful deal of good in the cases of atonic dyspepsia, struma, general wretchedness, etc., which are engendered by working for long hours in the crowded, hot rooms which so many of them have to frequent. Two or three bottles of this generally suffice to make cases of this sort feel all right again. Perhaps next in favor comes the "haust. menth. sulph. c. mag. sulph."

℞ Mag. sulph., gr. lx;
Acid. sulph., dil., ♏x;
Syr. papav. rub., ♏xxx;
Aq. menth. virid. to ℥i.

This is, besides being one of the most efficacious, one of the cheapest mixtures in the Pharmacopœia. Next comes the "haust. gentiana c. rheo."

℞ Inf. rhei, ℥ss;
Tinct. gent. co., ℥ss;
Sod. bicarb., gr. xviii;
Sp. chloroformi, ♏x;
Aq. menth. pip. to ℥i.

The efficacy of this mixture in a large proportion of the cases of dyspepsia is without question. The remainder of the stock of the small dispensary is made up of cod-liver oil, pills, the ever-valuable house physic (dear to the memory of the indulger in excess of alcohol), ointments, etc.

It will strike every one who visits the department as little short of marvellous that mistakes are not more frequently made. That it is not the case is greatly to the credit of the staff, who seem to have everything against them. One's pity is extreme for the poor man who has to face and subdue some of the talkative female patients. "Well, madam, what is the matter with *you*?" says the doctor, and if she were allowed to have her own way, one might believe that she possessed every ailment named in the College of Physicians' list, and a great deal to say about each. But this is not allowed. From being persuasive the questioner becomes severe, finds out by repeating each question about three times that dyspepsia, say, is the real trouble, gives the right-colored or initialled ticket, and goes on with the next case. In epidemics of any particular ailment, the examination is often carried out wholesale, and one may sometimes see a row of people complaining of sore throat, waiting to be examined *seriatim* with the aid of the spatula, or a number of cases of bronchitis stripped ready for the cursory examination which alone is possible.

But I am exceeding the limits which the editor will be inclined to allow me, so must draw these remarks to a close. I may say this much about the Casualty Department, that the work is done as well as it can possibly be under existing circumstances, and that a visitor will have no adequate idea of the immense work done by the hospital till he has watched in the surgery for a morning or so. Whether it be wise or economical to treat free gratis and for nothing a man or woman who owes the indisposition to indulgence in too much beer on the previous day is a question for the managers to decide.

Notes and Queries.

THOSE of our readers who have been interested in reading the reports which have appeared in the THERAPEUTIC GAZETTE concerning the treatment of myxœdema by the employment of thyroid-gland grafting, or the injection of thyroid extract, will be interested to learn that Messrs. Parke, Davis & Co. are now prepared to supply desiccated thyroids, in the form of an impalpable powder, in such a way that each fifteen grains represents one gland of the average size from the sheep. They are also ready to supply "cerebrin," and will guarantee the absolute asepsis of both of these preparations.

So much literature has been accumulated within the last few months indicating that the thyroid extract is of great value in myxœdema, that many of the profession in this country are already trying the method, with asserted good result.